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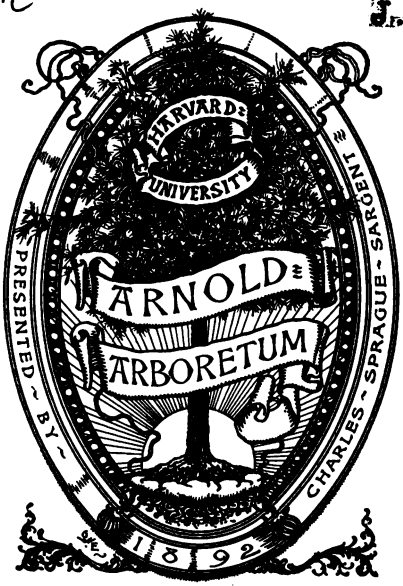
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C. S. Sargent Esq
from his friend
the Author
Aug 1870

ESSAYS.

ESSAYS:

AGRICULTURAL AND LITERARY.

BY

JOHN C. GRAY,

PRESIDENT OF THE MASSACHUSETTS SOCIETY FOR THE PROMOTION OF AGRICULTURE; FELLOW OF THE AMERICAN ACADEMY; AND MEMBER OF THE MASSACHUSETTS HISTORICAL SOCIETY.

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DEDICATED

TO

HON. LEVI LINCOLN, LL. D.,

OF WORCESTER,

IN TOKEN OF RESPECT FOR HIS CHARACTER

AS A MAGISTRATE, A CITIZEN, AND A DISTINGUISHED FRIEND

OF AGRICULTURE.

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PREFACE.

THE author cannot hope to communicate much valuable agricultural information to the Public in the few Essays which form the greater part of this volume. This must be out of the question, from their shortness, if for no other reason. A few statements and suggestions, which must stand on their own merits as true and useful, are all which he pretends to offer, and this indeed is as much as most writers on Agriculture can hope to do in so small a compass. He cannot hope that even what he has offered is free from errors, but in these errors he is probably not alone, and whoever may correct them will render a service to many. He can

only say that he has taken great pains to avoid any incorrect statements, and has expressed no opinions which have not been well weighed.

Adepts in Agriculture may find little or nothing new. But there are many who feel a warm zeal in behalf of this great and most interesting subject, whose knowledge and experience is comparatively limited, and many more whose attention need only be directed towards it, to exeite in their minds the like feelings. It may be safely said that no one ever regretted the time given to Agricultural and Horticultural pursuits, or ascribed to them any other than a soothing, purifying, and ennobling influence on the heart and mind. It is not necessary to render those pursuits agreeable that we should first be deeply versed in them. Nor is such proficiency at all requisite to authorize us to communicate our opinions to others. Few writers on agriculture have written entirely in vain. It is rather to be regretted that so many, who could have spoken with ability and authority have failed to write at all. In truth there is

room enough for all, from the author of massy octavos to the author of single paragraphs. The field is immense, and the harvest abundant, and the gleaners as well as the reapers welcome. One of the greatest writers of the last century, (Paley) has well rebuked more than once "that fastidious indolence which sits still because it disdains to do little."

The few Essays of a literary character, which are added in the latter part of this book will, it is hoped, be interesting to the general reader from the subjects discussed in them, if for no other reason.

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REMARKS

ON

NEW ENGLAND AGRICULTURE.

FEW works would be more interesting than a clear and judicious history of the Agriculture of New England, from the first settlement of the country. To write such a history would be no common achievement, even if the materials for so doing were accessible. This, however, is far from the case. Agricultural writings are a description of literature, if that name may be given to them, of very late growth in what may be called the modern world. It was not so in the ancient. Rome could boast of Cato, Columella, and other writers on husbandry, whose works may be consulted at the present day with great

advantage, and we are told that Mago, the Carthaginian, wrote no less than forty volumes on the same subject. But even England can boast of very few writers of this description of an earlier date than the last century. In our own country, Jared Eliot wrote professedly on field husbandry, and with great ability and skill, more than a century since, and thus earned the title of father of New England husbandry, but stood alone for nearly fifty years. What else has been said of our early agriculture, must be found thinly scattered here and there in our early annalists in incidental remarks on our climate and soil.

The clearest and most satisfactory passages which I have found on these subjects, are in the sixth chapter of Hutchinson's history, published in 1764. He quotes an anonymous, but discriminating writer, who wrote as early as 1637, and Hubbard, who wrote in 1680, and his own remarks prove him to be both a competent and impartial judge on the subject. It is surprising how accurate an estimate was formed by all these writers of the real quality of our New England soil. It has been often supposed that this, when first tilled, was, generally speaking,

highly fertile; and that this fertility has disappeared under a slovenly and exhausting cultivation. But the very terms employed by the writers referred to, might be inserted, without alteration, into an agricultural report of the present day. The earliest of them says: "The soil is like your woodland in England, best at first, yet afterwards grows more barren. This raised the report of so rich a soil; but we that came after, found by dear experience, that affection, not judgment, was the author of it; for after five or six years it grows barren beyond belief, and whereas after the land in England proves fertile for grass, this yields none at all." This writer probably spoke of the Plymouth Colony. Hubbard, however, in 1680, remarks of the country more generally, that "here and there, are many rich and fruitful spots of land such as they call interval land, etc. But, for the generality of the soil, it is of a lighter sort of earth, whose fruitfulness is more beholden to the influence of the heavens, advantage of the season, skill and industry of the tiller, than to the strength of its own temper." Hutchinson estimates the average quantity of salt hay to an acre at three quarters of a load, and exactly the same es-

timate is made by Mr. C. L. Flint in his valuable report published in 1854, precisely ninety years afterwards. We may, therefore, agree with Hutchinson's general conclusion: "From these several accounts some judgment may be made of the opinion our forefathers had formed of the country. Experience convinced many of them that the value of the land, when cleared, would make but poor wages for their labor in clearing it. It is a happy thing that a fondness for freeholds to transmit to posterity, with privileges annexed to them, excited so many of the first planters of America to hard labor, and supported them under hard fare." A similar opinion is expressed with more liveliness and quaintness by a "gentlewoman," whom Hutchinson quotes as writing shortly after the year 1637: "The air of the country is sharp, the rocks many, the trees innumerable, the grass little, the winter cold, the summer hot, the gnats in summer biting, the wolves at midnight howling, etc. Look upon it as it hath the means of grace, and if you please, you may call it a Canaan."

Time and cultivation have certainly done much to soften, some, and improve, other, of the features of this lively picture. But there is

scarcely a county in this State, of which large portions are not distinguished by all of them, with the exception of the wolves, who have long since shared the fate of other aborigines. In forming, therefore, a just estimate of what the products of our agriculture are, (a matter much less easy than might be supposed,) or of what they should be, we ought not to forget the natural qualities of our soil, nor ascribe wholly to imperfect cultivation the fact, that the products of farming land in Massachusetts are so scanty, in comparison with those of the most highly farmed districts of Belgium or England, or our own West. It should not be forgotten, that if our hard and stony soil imposes a heavy tax on the industry and patience of our cultivators, yet (to say nothing of the thrift and industry to which it has given birth) it affords an excellent substratum for good roads. He only who has wended his toilsome way through the rich soil of Kentucky or Indiana, can do justice to the comparative superiority even of the wildest portions of New England in this most essential particular.

Of the climate of New England I have spoken somewhat at length in another Essay. I have

said nothing, however, particularly, of the length of its winters, as increasing materially the expense of capital, and more especially of labor on the part of the farmer. The time when our winter departs, and still more when it commences, varies greatly in different seasons. But the whole length of our winters may be fairly stated, on the average, at not less than five months. During this period our cattle must be soiled, in other words fed in barns, and the food for this purpose be gathered in advance in the growing season. The providing of barns for the shelter of the cattle and preservation of hay and grain, forms in itself no small item of outlay. But such are the benefits derived from this protection, that it may be fairly said to cost nothing.

But the raising of food to be thus expended, during nearly half the year, requires a large amount of the labor of the remaining half. The narrow limits, too, to which the planting season is reduced by our late winters on the one hand, and by the rapid progress of summer weather when it once begins, on the other, render our spring a proverbially busy and hurried season. It has been seen that the first settlers of New England, and more especially of Massachusetts,

were not long in coming to a just estimate of the true character of the soil of their adopted country. The climate, doubtless, made itself fully known to them at a still earlier period.

From the very nature of their condition, agriculture was for many years almost their exclusive occupation. They brought from England their modes of farming, their domestic animals, their implements of husbandry, and with one striking exception, their agricultural staples. This exception was the Indian corn. This plant they derived from the natives, who also instructed them in the mode of cultivating it. It was certainly a most precious gift, whether we consider its intrinsic value, or its adaptation to our soil, our climate, and our wants. Scarcely any plant can be placed higher in the list of agricultural productions. No other proof is needed than its extensive cultivation in North America, from Canada to the Isthmus of Darien.*

It is only surprising that it should not have been more extensively cultivated in Europe. It

* The crop of Indian corn in the United States, for the present year, (1855,) has been estimated by competent judges at nearly one thousand millions of bushels.

is denied to Great Britain by the want of sufficient summer heat, and as it is there little known, it could not be expected that its value should be generally appreciated. But this value has not been wholly overlooked. Cobbett praised it according to its deserts, though he failed to prove to farmers that it could be profitably raised in England, and to readers of history, that it was the identical grain which the apostles gathered on the Sabbath day in Palestine. I find the following remark in a work of high authority, viz.: the Quarterly Journal of Agriculture for 1837, published at Edinburgh. The author is specifying the several grains best adapted for the food of poultry: "We made trial of all kinds that are usually given, — tail-wheat, inferior barley, sunflower seeds, maize or Indian corn, potatoes boiled, and barley of the best quality. It must be confessed that Indian corn is the aliment they most preferred, but as it is now very little cultivated in this country, it is too expensive."

This valuable and interesting plant was, probably, for several years, exclusively the bread corn of our pilgrim fathers. It was to be expected, however, that they would lose no time in ascertaining by experiment how far the soil and cli-

mate of their new home was fitted to the culture of the most important staples of their native land. The want of English grain, wheat, barley, and rye, says Johnson, proved a sore affliction to some stomachs, who could not live on Indian bread and water. Yet they were compelled to do it. Even this hard fare could be procured only in scanty quantity. In the year 1631, corn was imported from Virginia at the cost of ten shillings sterling ($2.50) per bushel, a cost never approached in our day. This, however, was a year of great scarcity. In 1633, according to Johnson, as quoted by Hutchinson, (1.29,) a small glean of rye (apparently from Cambridge) was brought to the court as the first-fruits of English grain, at which this poor people greatly rejoiced to see the land would bear it. Wood, who wrote in 1634, (see Chronicles of Massachusetts, by Dr. Young,) states that English grain, especially barley, oats, and rye, had been planted with great success in Lynn.

The unfitness of Massachusetts, generally speaking, for the cultivation of wheat, seems to have been fully ascertained at an early day. It has been supposed that while our soil was fresh, this product was raised with as much success in

Massachusetts as it now is in the comparatively new fields of western New York. But this period must soon have passed away. Hutchinson remarks, (p. 210,) "that in the year 1664, the wheat throughout the colony was spoiled by blast or mildew. This is represented as a new or unusual thing, but continued more or less for divers years together, until the people were discouraged from sowing; but little wheat having been raised since, except in the towns upon Connecticut River." Thus wrote Hutchinson precisely one hundred years later than the time to which he refers, and thus may we speak now, at the end of nearly another century.

The most important products, however, introduced from the mother country, so far as New England is concerned, are the English grasses. A large variety of these were, as we may say, unavoidably introduced with the earliest importations of domestic animals. Every square foot of turf, as observed by the late Mr. Lowell, contains spires of many different grasses, though in very unequal proportion, and consequently not a truss of hay could well be brought from England, which would not afford a like variety of grass seed. Hutchinson, after quoting Wood, who

wrote, as already stated, in 1634, draws the conclusion that no English grass was then raised in the colony. The principal resource for fodder was probably the natural grasses of our salt marshes, especially as our settlements were entirely on the sea-coast. Hutchinson speaks of a natural upland grass, which he describes as poor fodder, perhaps not better, if so good, as barley straw. He says it is commonly called Indian grass. I am not able to ascertain, from any botanical work, what grass is probably meant. Of the different species of imported grass, the colonists would soon select, as a matter of necessity, those best adapted to the soil and climate.*

I find no precise account of the period when English grass was first extensively cultivated. There is every probability that one species soon gained the ascendency, which it preserves to the present day. I mean that valuable and well-known kind called by botanists *Phleum pratense*, and known in New England under the name of cat's tail, herdsgrass, or Timothy. The last appellation was given, it is said, by way of compliment, whether serious or ironical, to Timothy

* See note A. at the end.

Hanson, who introduced it from New York or Pennsylvania into the Southern States. Had it been called by his surname, the compliment would have been more respectful, but could not well have been more enduring. The name is now divested of all ludicrous associations, and is generally preferred in England, as well as this country, to any other trivial name, perhaps because it has never been given anywhere to any other description of grass. It does not seem clear when or where Hanson lived; and this single name is the only vestige of him (a most enduring one certainly) which we can now find. We know only that he must have lived more than a century ago. Jared Eliot, in an essay written previous to 1751, recommends this grass highly under the name of herdsgrass, and adds that it was also called Timothy in Pennsylvania. If Hanson's exertions contributed materially to extend the cultivation of this plant, he certainly did much for the agriculture of our country.

As a plant adapted to our soil and our circumstances, this plant may dispute the preëminence even with our cherished Indian corn. It has probably constituted, for nearly a century and a half, the great staple of our English hay

in the Northern and Middle States. As already observed, there are in every field specimens of many varieties of grass; but the herdsgrass predominates almost everywhere. The agricultural returns, made to the general government, prove that in all the Atlantic States north of the Carolinas, and in all the North-western States, it is the farmer's chief reliance for permanent mowing grounds; and the practice is rapidly gaining ground, of sowing it for this purpose alone, without any mixture of redtop or clover.

We have seen that it bore a high reputation in this country one hundred years since. In England it seems to have been comparatively unknown previous to the year 1765. Indeed it has been supposed by many in both countries to be an indigenous American grass. Such, however, is in all probability not the fact, as it seems to be described and figured with tolerable accuracy by Parkinson, under the name of Cat's Tail Grass, in his Herbal, published in 1640, and by Gerard several years earlier. The credit of first introducing it into England, as an object of regular cultivation, seems to belong to Bartholomew Rocque, a native of France, who resided near London, in 1765.

An account of his experiments to this effect may be found in the Museum Rusticum. He describes it with great accuracy, and says that the seed could be procured from America at the rate of a guinea a bushel, a price nearly double that which it now brings. His first experiments were made about the year 1763, and he evidently pursued his investigations with great thoroughness and fairness. The grass seems to have been at that time highly appreciated, and much interesting discussion on the subject may be found in the Annual Register of 1765, and in the Museum Rusticum. It is, however, from all accounts, little cultivated in England now, and seems to be supplanted as a staple by the Rye Grass, (*Lolium perenne*,) which Dr. Colman pronounces to be in no way superior. The fullest and most accurate description of timothy, and indeed of most cultivated grasses, is to be found in the Hortus Gramineus of George Sinclair. He gives to this grass a very high character, as will appear from a few sentences selected from his description: "The culms (stems) of this grass, at the time the seed is ripe, contain more nutritive matter than those of any other species of grass that have been submitted to experiment."

He adds, however, that "though there is more nutritive matter contained in the seed crop than in the flowering crop, nevertheless, the loss of the aftermath, which would have been produced in the time the seed was ripening, would more than outweigh the superior quantity of nutritive matter contained in the grass of the seed crop."

To the practical farmer, this last observation, which likewise applies to every similar statement throughout these details, is, I am sure, unnecessary. "I was, in 1815," continues Sinclair, "informed by a proprietor of land in Canada, that it is still considered the best grass in that Province." Most of the English agricultural works recommend this grass strongly for permanent pasture; but its use is, as before intimated, far less general than in this country. Nor has its value even here been universally admitted. Many, perhaps a majority, of our most distinguished agricultural and botanical writers have spoken of it as a coarse, tough grass, and have recommended various substitutes from among the more popular grasses of Europe. But it has not only kept its ground among our practical farmers, but apparently risen much in estimation. It is not to be supposed that a reputation so extensive and so

long and well tested, should exist without good reasons. Some of these may be, first, its great hardiness. Its capacity of surviving our severest winters is beyond all question. Its growth is in some degree affected by our summer droughts. In resisting these, especially on light and gravelly soils, it is of less value than our New England redtop, (*Agrostis vulgaris*). Still its thick stalk, which is sometimes nearly as stout as that of wheat or rye, and large roots, enable it to endure even these much better than most cultivated grasses. In stiff clayey soil it is often the only grass which can be sown to advantage. Secondly, it yields here, as in England, a greater burden than most permanent grasses, and the hay made of it seems to be of far better quality here than in that country. If our hot suns sometimes check its growth, they make us some compensation in ripening its juices after it is mowed. Indeed, the opposite opinions generally entertained of it here and in England, may be accounted for and perhaps justified by the considerations stated in the following intelligent and candid remarks from a highly respectable English work, (Complete Grazier, p. 496,) 1833:

"From the inquiries made by William Strick-

land, Esq., at the request of the Board of Agriculture, concerning this far-famed grass, it appears to be extensively cultivated in the Middle and Northern States of the American Union. He had frequently seen extraordinary crops of it growing as thickly as it could stand on the ground, three or four feet high, and in some instances as coarse as wheat straw. In this state it is cut before maturity, and as the hay in America is always well cured, however succulent it may be at the time of cutting; horses prefer it to every other kind of hay, and thrive better upon it. No other grasses approach it in product. Since his return to England, Mr. Strickland, by cultivating it in his garden, ascertained it to be the same as the cat's tail grass, but was doubtful whether if it were cultivated in the field, and should grow with American luxuriance, an English sun would be able to cure it with American perfection." It ought to be stated, that in both countries the reputation of timothy may have suffered from mistakes in the manner of sowing, and more especially in the quantity of seed. It seems to be the better course, in our dry climate, at least, to sow this grass by itself at some time between the middle of August and the first of

November, and thus avoid exposing it to our summer droughts before it is firmly rooted. For it comes up slowly in heavy land, so that it is often hastily taken for granted, that the seed has failed, and we must wait patiently for a year or two before it appears in full force. As to the time of cutting, there seems to be no better rule than that given by Lorain, (p. 290,) as well as by many distinguished English and American writers, that timothy and all other grasses yield the most and best hay when out in blossom. At that time the leaves have attained their full size, and continue fast on the stalk. The rich matters which form the seed still remain in the stems, leaves, and flowers of the plant. To which it might be added that coarse grasses, especially, as this with all its valuable qualities must certainly be called, if left standing till they have perfected their seed, must inevitably become somewhat harsh and woody.

The grass next in importance to the New England farmer to the timothy, though with a long interval between, is the Redtop, (*Agrostis vulgaris*,) of Bigelow, or Common Bent, of Sinclair. This plant seems to be cultivated little, if at all, in England. It is, however, recommended

in the Quarterly Journal of Agriculture, published in Edinburgh, as valuable for dry gravelly soils. It is often said to be the same with the herdsgrass of the South. We are told, however, that it is there sown to advantage on moist grounds. With us it flourishes well on dry soils. It is a beautiful grass with a slender stalk, but far less productive in nutritive matter than timothy. Sinclair estimates the produce of these grasses respectively, per acre, before drying, to be, if cut when the seed is ripe,

Of Timothy, about 41,000 lbs., and
" Redtop, " 9,500 "

Its slender stem seems less fitted to resist the drought. But its creeping roots render it more capable of doing so than any grass extensively cultivated among us. For lawns, this delicate grass is by far the best which can be employed in this climate, and for this purpose it is best sown alone in the autumn. I do not think a bushel per acre too much. Its seed is very light, weighing not more than one third part as much as that of timothy; and the two grasses, I believe, are generally sown together or with red clover, and the proportions are so varied in differ-

ent cases that it is not easy to frame any precise rule on the subject. For dry soils it seems decidedly preferable to the herdsgrass. We are unable to say when this grass was first introduced, but it has probably been cultivated among us nearly a century.

It is not my object to give a list of the agricultural products of New England. I have merely selected one or two which may be said collectively to surpass in value all others united, and which have constituted almost from the very beginning our chief staples, and in all probability must ever do so. They were wisely selected as such by our ancestors, unless we may say that they were rather forced upon them by the peculiarities of our soil and climate. Our agriculture has in the last fifty years been greatly improved in many respects, but research and experiment have failed to supply us with any good substitute for our Indian corn and herdsgrass. A comprehensive sketch of New England farming for the first hundred and fifty years, would, as already observed, form a most interesting document. Some of our oldest modern writers have spoken of this farming with undeserved contempt; and seem to have taken it for granted, that because

there was much to improve, there was every thing to change. Agriculture is more than almost any art an empiric, or to speak in plain English an experimental art, and it has been well said that its general rules may be laid down in a single duodecimo, but that twenty quartos will not contain the exceptions. It is not to be supposed that five successive generations of men, wanting neither in intelligence, information, nor industry, and under the stimulus of strong necessity, should pursue any system of agriculture not adapted in the main to their situation and their wants. That great improvements have been made in the last thirty years, is nevertheless a most indisputable, as well as most gratifying circumstance.

One of the most important of these is the greater care now bestowed on the preservation of manure. This is an article of prime necessity to those who cultivate the hard and cold soil of New England, and at the same time more scarce here than in many more favored regions of our country, and every day becoming still more so. This results not merely from the increased demand. Many substances highly prized as manure elsewhere, may be considered as inac-

cessible to farmers in Massachusetts and in many other portions of New England, and some of the most valued of these seem far less effective on our soil than in other States. This is more especially the case with lime. I have been told in one of the central districts of Pennsylvania, that this article lies in abundance at their very doors, and that it is often applied with great advantage at the rate of three hundred bushels per acre. This with us would be deemed a scourging process, and it certainly would be a most expensive one, with lime at eighteen cents per bushel at the place of delivery. There seems to be much truth in Dr. Colman's remark, that lime produces the best effects as a manure in limestone countries. Its little comparative value with us is sometimes ascribed by chemists to the supposed fact that there is lime enough in the soil already; but this supposition is at variance with the remark just quoted. We are in fact much in the dark as to the precise mode in which mineral manures operate; and even the question whether they will operate to any great advantage, seems to be one to be settled in each case, by actually applying them. The cost of most mineral manures must, however, place them out

of the reach of our farmers, except near those spots where they are actually found, and the remark may be applied to manures generally. They are all bulky articles. A cord of farm yard manure, well trod, weighs nearly three tons, and mineral manures, which are nothing but stones reduced to powder, are far more weighty.

Now, so high are the wages of labor, and of course the cost of carriage in this country, that the transporting of any manure for a very few miles doubles the prime cost. Farm yard and stable manures, which are more used, and I apprehend more valued in this State than any other, generally cost the farmer who purchases them, when delivered at his place, about as much as good cord wood. It is natural that this heavy cost of an article of such importance, should lead to greater care and economy on the part of our farmers in preserving and applying such manure as is made or procured on their own farms. Articles which were once utterly disregarded are now carefully added to the manure heap, and this important agricultural resource is daily becoming a subject of more attention. Notwithstanding, however, much that has been written, and doubtless also much that has

been done in this matter, there is still great room for improvement. The most important step in this direction seems to be the further extension of the practice of forming compost heaps. It seems to be a strange assertion that by the addition of a cord of stable manure to a cord of muck or loam, not only the quantity but the value is doubled; in other words, that a cord of pure manure added to a cord of earth is of equal value with two cords of good manure. The assertion would in truth be strange, if we did not advert to the fact, that while the manure remains unmixed, it is losing every moment some of its richness. The steam which passes off into the air from a manure heap, and thus becomes something worse than useless, is kept in when the manure is mixed in compost, and thus rendered not only inoffensive but profitable, so that we may say, generally, that wherever manure makes its presence known, except by its effects on plants, it is an offence against good economy as well as good taste.

As an article to prevent such disadvantages, the gypsum or plaster of Paris is greatly valued in this vicinity. As it is not caustic, it may be safely mixed with stable manure without destroy-

ing any of its virtue. When thrown on barn floors it prevents any exhalations from rising, and thereby not only keeps in the richness of the manure, but promotes the health of the cattle by preserving a pure atmosphere. As a mere fertilizer to the soil, this article, like lime, seems to produce far less effect in Massachusetts than it is said to do in the Middle States.

The most important improvement which has taken place in American agriculture during the last half century, is the improvement in the quality of our domestic animals. How far we have gained in our neat cattle, by the importation of animals from abroad, has been for thirty years, and now is, a much disputed question. No decision ought to be pronounced either way, without thorough experiments, and for such experiments we must allow many years. To import a fine animal from England in good order is an expensive operation. The freight alone is nearly equal to the cost of a native animal of the same kind of the first quality. Few New England farmers, or New England Agricultural Societies can conveniently incur such expense, and those who can do so, have, at present, no hope of an adequate remuneration in a pecu-

niary shape. The animals among us of unmixed foreign races must always form a very inconsiderable portion of our New England stock, and hence the diffusion of their blood, even if generally sought for as desirable, must be very slow. Besides, most foreign races are necessarily deficient in hardiness, by which I mean the power of enduring not merely the severe cold but the violent extremes and changes generally of our climate. Some generations may be necessary to produce this hardiness. One effect has certainly followed from the introduction of fine specimens of horned cattle from abroad, namely, that our farmers have been stimulated to greater industry and vigilance in the selection of breeding animals from our native stock. This last process was recommended in many elaborate essays by the late Colonel Pickering, as that to which we must look chiefly, if not entirely for the improvement of our cattle. There is certainly much encouragement to pursue it. Our forefathers seemed to have spared no expense in providing themselves with valuable animals. Hutchinson (chap. 1,) quotes Johnson as saying, that in 1640, a modest computation then made of the whole charge of transpor-

tation of the persons, their goods, the stock of cattle, provisions, etc., until they could support themselves, necessaries for building, artillery, arms, and ammunition, amounts to £192,000 sterling. This is, in round numbers, one million of dollars, a sum which, regard being had to their wants and their means, may be styled in moderate language, immense. Hutchinson adds, that the price of a milch cow had kept till 1640, from twenty-five to thirty pounds, (one hundred and twenty-five to one hundred and fifty dollars,) and then fell to five or six pounds, nearly a fair average price at the present day. For the thriving of cattle, when once acclimated, New England certainly seems as well adapted as any country which we know. Our dry bracing atmosphere and pure water, have doubtless materially contributed to preserve our domestic animals in good health if not in high condition.

They have, generally speaking, been well cared for. From the beginning our barns in New England have been well constructed, and in some of our Middle States, the barns compare very respectably in appearance and convenience with the farm-houses. With us the ox was for a long time employed almost exclusively in plough-

ing, so that our working oxen are probably fully equal to those of any country. Dr. Colman indeed states that a pair of oxen may be made to perform as much work as a pair of good horses; but this, except on rocky grounds or a very tough sward, may be stated rather too strongly. The value, however, of oxen for draught and ploughing, as well as ultimately for food, has led our farmers to keep and train them with great care and kindness, and the disposition to do so is continually increasing. It is now, however, the improvement of our dairy stock, at which those who import and purchase foreign cattle chiefly aim; and experiments are carrying on which bid fair to indicate in a few years how much may be done to effect this very important and interesting object.

It is, however, to our sheep and swine that we must look, if we would see what can be effected by the judicious introduction of valuable races of animals from abroad. The most striking instance is the effect which has resulted in the last forty years from the introduction of the Spanish merino. This animal is certainly one of the most valuable presents of the old world to the new. It has proved perfectly hardy, and its good

qualities were so generally appreciated at its first introduction, that it may be said to have driven out our old race which was brought from England, when her agriculture was in all respects in a low condition, so that a sheep which has no merino blood, is, in many parts of New England, a rarity. The improvement of wool is of less consequence than it once was in New England, which has ceased in great measure to be a wool-growing region. But if we take our whole country into consideration, the improvement in its revenue by the introduction of this animal alone, must be estimated at many millions of dollars. The introduction of the Saxon sheep has doubtless contributed materially to raise the value of our wool still higher. This variety, however, seems to be a less hardy race than the Spanish merino. We can form a better conception of the advantages derived from these importations, if we recollect, that from the report of the Patent Office, 1851–2, (p. 496,) it appears that the number of sheep in the United States, then returned, was nearly twenty-two millions, or one for every free person in the country, and that it is probable that the returns were incomplete.

The marked improvement in our swine which has been effected in the last thirty years, is even more conspicuous and perhaps more important, than that of our sheep. The flesh of this animal, fresh or cured, may perhaps be considered as our great staple in the way of animal food, especially if we consider its universal use among the people, free or slaves, of our Southern States. By the document just referred to, the number of swine in the United States is stated at more than thirty millions, exceeding in number by many millions the entire population of our country of all denominations. The tall, gaunt, long-legged race of these animals which prevailed at the beginning of this century, was probably brought from Gloucestershire, in Great Britain, and once prevailed through that island. It may now be considered in New England, at least, as gone by, and the several races which have taken its place are all decided improvements. The good quality of our pork, in general, is often ascribed to the Indian corn, on which the animal is fattened, and this opinion, though contested by many in countries where corn cannot be raised, is in the opinion of our best judges entirely cor-

rect. Notwithstanding, however, the manifest improvement which has taken place in our domestic animals, it is certain, and I believe it is generally admitted, that much yet remains to be done. We find now and then individual specimens of all our races which would compare advantageously with any which could be found elsewhere.

The Oakes cow, for example, which was exhibited in our neighborhood thirty years since, has been surpassed, so far as we know, only by one animal in Great Britain. But her valuable qualities were not transmitted in any material degree to her posterity. What we need is a race of valuable animals, distinguished, generally at least, by the same uniformity in their good qualities, which we find in the select races of animals in Great Britain, so that the farmer who buys a young animal, can rely with some assurance on its value, without waiting for the test of experience. If we now have any such races, they are certainly not extensively known. It is our domestic animals that must constitute, after all, the most valuable agricultural product of New England. These six States may be said in general to be essentially and unchangeably a grazing

country. Our grass and Indian are now, the one entirely and the other nearly so, employed as the food of our stock. No expense employed in improving the qualities of that stock can be wholly thrown away.

One of the most striking improvements in our agriculture, and one too which it requires little agricultural skill to appreciate, is that which has taken place in our agricultural implements. This is of modern date. Little seems to have been done or attempted in this way previous to our revolution. But our progress in this respect since, has been as rapid as our advancements in manufactures and commerce. The cotton-gin of Whitney, the invention of a New England man, though adapted exclusively to a Southern staple, is one of those great discoveries of which the pecuniary results must be counted by millions, and it must be placed in the same high and select class of achievements in the useful arts with the great inventions of Bolton, Arkwright, and Fulton. But we need only go into any of our agricultural warehouses, to admire the combined strength, lightness, and neatness of the tools commonly used in our agriculture. They formed one of the few classes of American articles ex-

hibited at the Crystal Palace, in London, which represented in any adequate degree the ingenuity of our American mechanics.

It is believed that our agricultural implements may compare advantageously with those of any country, not excepting Great Britain. They are certainly far superior to those employed by the farmers of the European continent, which have been handed down for ages, without much improvement, and which, had labor been as costly there as here, would have been long since discarded from sheer necessity. The wages of labor in this country are far higher than in any other known to us. We say, in general terms, that our agricultural laborers receive three times as much compensation as those in England. Such has long been the case, and such to all appearance it must be for an indefinite period, unless wages in that country should materially advance.*

* There has been, I believe, a considerable advance in the wages of labor in Great Britain, within the last five years, which is ascribed partly to the emigration to Australia, and partly to the existing war. The extent of this advance does not seem to be precisely ascertained, and it is yet too early to say, in what way, and to what degree, it will affect British agriculture.

It is well known that on the continent of Europe they are much lower. Now, however desirable this high cost of labor may be on the whole as an index and material ingredient of our national prosperity, it is obviously a heavy detraction from the farmer's profits, except so far as he is his own laborer. As there is no prospect that the price will fall, the only way in which it can be rendered cheaper in any sense is by rendering it more effective. This can be done to a great extent, in commerce and manufactures, by the introduction of machinery; but machinery can be employed in agriculture only to a small degree. Steam, the great mechanical agent in the useful arts, can scarcely be introduced, though something has been said of steam ploughing on level grounds. Agricultural labor must, in the main, be carried on by man, or by domestic animals, and every one knows how much can be effected in both cases by well-constructed implements.

One of the most interesting and important improvements in our agriculture of modern date, at least in our own State, consists in the extension and improvement of our gardening, including in this term what is called our market gardening.

To this more delicate branch of agriculture, the land in the vicinity of our cities is now almost exclusively devoted. It is from such cultivation alone that any large profits on the capital employed can be expected, and such cultivation is nowhere carried on with more skill and assiduity than in the neighborhood of our largest cities. Here the process of dividing large farms into small patches is continually going on, and our fruit and vegetable markets are rapidly approaching those of the great cities of Europe. It is to these small farms, or I may say large gardens, that spade husbandry in this country is limited and must be so for a long time.

Field cultivation by the spade is unknown in any part of our States, and where practised is mostly carried on by immigrants from other countries, so that the spade can hardly be called an American implement. Some curious instances have been given of the success with which it may be used by the market gardener. Colman, (I. 123,) says, "One of the most productive farms in New England, if farm it may be called, consists of seven acres, from which the cultivator sells, annually, to the amount of $2,500, about $350 per acre." In that valuable

agricultural journal, the Country Gentleman, (V. 91,) we are told of four acres of kitchen garden on Long Island, which yielded for the year 1852, a net profit over expenses and interest, (calculating land at $1,000 per acre,) of $1,637.75, or more than $400 per acre. A statement is added of twenty-three rods of the same description, which yielded a produce of $128, equal to about $890 per acre; and we are further informed, that the soil was trenched to the depth of twenty inches, and plentifully manured. We are not told the *net* profits, which must, however, obviously have been very large. It is evident that in all cases of similar profits in this country, the owner of the land must be in a great degree his own workman.

I have thus briefly alluded to some of the most important improvements which have taken place in our New England agriculture in late years.* I apprehend that we may say that there has been a striking general improvement in the condition and appearance of our farms, and this may be stated more specifically by saying, that our domestic animals are raised, trained, and

* See note B. at the end.

nourished with more care, our fields fenced and cultivated with more neatness, our fruit-trees improved by the introduction of new varieties, or the further diffusion of the best kinds of fruit previously known, our manure treated (as it truly is) as a valuable treasure and not as a noisome incumbrance, the field cultivation of valuable roots on a large scale for the feeding of our stock in winter, and of succulent food to support them in our summer droughts, introduced, and generally that our rural districts are distinguished by an appearance of far greater thrift and comfort than they presented fifty years ago.

We can form a better opinion of what has been effected and what may yet be done, by contrasting our agriculture with that of England, the country whence almost all our agricultural knowledge is derived. On entering on such a comparison the most careless observer must be struck by the marked difference in many respects between our rural districts and most of those of England. To the traveller the greater part of England proper appears like a level garden. It is chiefly in Cumberland and the adjoining counties at the north-west, that he will find tracts of such scenery as remind him of the stern and wild

aspect of his native land; and it is only on the borders of our beautiful rivers that we find any evidence of what may be called English fertility. The highly finished field cultivation of England, Belgium, and Italy, is nowhere seen here with the striking exception of the trim settlements of the Shakers.

It is natural to inquire into the causes of these great differences, to ask how far they may be owing to the natural condition of the two countries as to soil and climate, and how far to causes of a different kind. Of the different climate of the two countries I have spoken already, and I have just remarked on the superior fertility of the English soil, generally speaking, to that of New England. We can do very little to counteract the influence of our climate, and not much more to change the quality of our soil. The mixing together of soils of different descriptions, and the application of manures to a large extent, are expensive operations from the cost of carriage, if from no other reason; and after all, a complete change of the soil to the depth to which we usually cultivate, is a work which can scarcely be carried on to profit except in mere gardening. But there are other important differences in the

condition of the British and the New England farmer which must produce a striking diversity in the result of their respective labors. I have selected from Low's Elements of Agriculture, an example of a well-conducted farm in the south of Scotland. This example is evidently given as a fair average specimen, and it matters little whether or not it is taken from actual fact. I have omitted many minor details, and used round numbers. I have also made a few other unimportant variations, which may easily be discerned by referring to the original. British currency is reduced to American, at the rate of five dollars to a pound sterling.

1. The farm is supposed to consist of five hundred acres, and to be cultivated as follows:

100	acres in oats.
100	" " fallow turnips, potatoes, and tares.
100	" " wheat and barley.
100	" " young grass.
100	" " grass of second year.
500	acres.

Low affixes no value to the farm, but as he estimates the rent at $5,000, I suppose the value to be	$160,000
The value of implements is stated at . .	2,365

The animals employed in labor are six pairs of horses, who do all the ploughing, one spare horse for errands, and one saddle horse.

13 work horses, at £30 = $150, ...	$1,950
1 saddle horse, at 30, ...	150
Total horses or working animals, ...	2,100
Add for implements, ...	2,350
Total for what may be called laboring apparatus,	$4,450

Live-Stock kept for sale, Wool, or the products of the Dairy.

No dairy is supposed to be kept except for the supply of the family, and therefore all the cows are appropriated for this purpose or the rearing of calves.

The number of cows is assumed at 10, at £12, or $60 each, ...	$600
The number of calves is estimated by Low at 20, if so, some must be bought.	
He values the 20 calves, in all, at . . .	150
	$750
20 steers, one year old, ($37.50,) . . .	750
20 " two years old, ...	1,250
1 bull, one year old, ...	75
Total neat cattle, ...	$2,825

SHEEP, ...	$2,150
SWINE. — 2 breeding swine, at $10 each, .	$20
1 young boar, ...	5
	$25
POULTRY. — 20 chickens, 1*s.* 6*d.*, (37½ cts.,) .	$7.50
12 ducks, ...	4.50
3 geese, ...	2.50
3 turkeys, say, . . .	4.00
	$19.00

RECAPITULATION.

Working stock, (horses,)	$2,100
Other live-stock, £1,000, ...	5,000
Total animals, ...	$7,100
MANURE. — 1,000 tons, say 300 cords, at $4.50, say, ...	$1,500

Recapitulation of capital as embracing those items which we should so consider in this country: —

1. Land, $320 per acre, ...	$160,000
2. Working animals, (horses,) . . .	2,100
3. Other live-stock, (about)	5,000
4. Implements, ...	2,365
	$169,465

Manure on hand, ...	$1,500
Total capital in land, farming stock, and implements, say, ...	$170,000

Annual expenses, drawn from Low's Estimate.

1. SEEDS. — Turnip, 120 lbs. at 18 cts., . .	$21.60
15 bushels tares, . . .	18.75
100 bushels rye grass, 75 cts., .	75.00
1,000 lbs. clover, 20 cts., . .	200.00
Total seeds, ...	$315.35
MANURES. — *Low's Estimates.* — Lime, per annum, 144 bushels per acre, at 9 cts. and limes 50 acres. (Low, p. 654.)	
Annual expense, say, . . .	$315
Other manures, ...	125
Total manures, ...	$440

LABOR.

I copy here Low's Table in full.

6 ploughmen, wages per year, £16 15s. each, .	$502.50
1 overseer, ...	108.75
1 shepherd, ...	108.75
1 hedger, ...	83.75
1 person for care of cattle, $2.50 per week, .	130.00
Hoeing, haymaking, etc., ...	200.00

Mowing hay, 18 acres, at 62 cts.,	$11.13
Harvest work, 200 acres,	435.00
Carpenters' work for implements, at the rate of $15 for each pair of horses,	90.00
Iron-work for implements,	90.00
Saddler's work, at $5 each pair of horses,	30.00
Shoeing saddle horse, [This seems very low.]	5.00
Additional iron and carpenter work,	35.00
Repairing houses,	25.00
Marketing, 12 miles distance, farriery, and minor charges,	164.12
Total labor,	$2,019.00

RENT AND TAXES. — Low calculates a rent of nearly $5,000.

I suppose here that the farmer owns the farm, in order to facilitate a calculation to be made presently.

Taxes and insurance are estimated about	$115.00

RECAPITULATION OF ANNUAL EXPENSE.

Seeds,	$315.35
Manures, (principally lime,)	440.00
Labor, including mechanics' work,	2,019.00
Taxes and insurance,	115.00
Total annual expense,	$2,889.35

ANNUAL PRODUCE.—100 bushels oats at 48 bushels per acre,	4,800	bushels.
Deduct for seed,	500	"
13 work horses, (about 90 bushels each, or 1 4-5 bushels weekly, say 8 quarts daily,)	1,186¼	"
Saddle horse,	91¼	"
Sheep, poultry, etc.,	60	"
	1,837½	"

Leaving for sale 2,962½ bushels of oats at 66 cents,	$1,975.00
40 acres wheat, 24 bushels per acre, deducting 120 bushels for seed; 840 bushels at $1.66,	1,400.00
60 acres barley, 42 bushels, deducting for seed 180 bushels, 2,340 bushels net, 91 cents,	2,129.40
Total vegetable produce not consumed,	$5,504.40

Produce of sale live-stock.

20 calves,	$87.50
50 pigs,	306.00
Poultry,	37.50
20 three year old steers, average weight 910 lbs.	1,820.00
40 old ewes, 40*s.*	400.00
50 ewes, one year old, sheared, at 27*s.*	337.50
90 sheep, one year old, at 32*s.*	720.00
2,148 lbs. wool, at 1*s.*	537.00
Net product live-stock,	$4,245.50

ABSTRACT.

Vegetable products, ...	$5,504
Animal "	4,245
	9,749
Deduct expenses, *without* rent, . . .	2,889
Net return, ...	$6,860

Being a little more than 4 per cent. on the capital of $170,000.

Out of this $6,960 the farmer supports himself and his family, incurring the usual casualties of his business.

Such is the position of an English farmer in the south of Scotland, in the case assumed by Low, supposing, however, that he owns his farm. Now, in order to afford some illustration of the difference between English and American farming, let us suppose this farmer to carry on the same farm in precisely the same way, and more especially with the same amount of labor; but let us suppose, also, that he pays and receives the average New England price for every thing which he procures or sells respectively.

His capital may be stated as follows: —

1. Low supposes the farm to consist of five hundred acres, in a high state of cultivation, yielding crops at the rate of 24 bushels of wheat,

48 of oats, and 48 of barley per acre. He also supposes it to lie within 12 miles of a good market. He supposes it, also, to yield a rent of $5,000. Such a farm in this country might be fairly considered as worth $200 per acre, or $100,000

2. Low supposes the implements to cost about $2,350. Some of these are more and some less costly than the corresponding articles here. I think our implements, generally speaking, are rather better, and that on the whole there might be a saving of $350, leaving for cost of implements, ... 2,000

3. Low estimates the live animals to stock the farm, in all, at $7,100. The prices of these are, on the whole, I think, nearly one third above our *average* New England prices. I therefore estimate this item of capital at . 5,000

$107,000

4. Low estimates manure on hand to the amount of $1,500. I suppose the cost of this article to be about the same here, ... 1,500

$108,500

Other items, denominated *capital* by Low, should, I think, be reckoned among annual expenses.

Expenses.

I suppose the farmer to own his farm, and I therefore exclude rent.

1. TAXES. — These, in New England, on a farm valued at $100,000, would be not less than . $400
2. SEEDS. — These are estimated by Low, excluding seed furnished by the crops, at about $320. Seeds, on the whole, are, I believe, less expensive here than in England, as grain is generally 25 or 30 per cent. there above our average prices. This, however, is not the case with turnip seed, which is double the price here. On the whole I estimate the seed as an American price, at . . . 300

.$700

3. MANURES. — Low estimates the annual cost of these at $440. He manures principally with lime, at 9 cents the bushel. Near Boston it would cost nearly double,* but in limestone districts it could be had at the English price. Stable manure is, I think, nearly at the same cost (generally speaking) in Old and in New England. Let us suppose 100 cords stable manure, at the place, at $4.50 the cord, ... 450

* This statement is much within the truth, and a like remark may be made with regard to a statement respecting the value of Lime on a former page. This article is now, February, 1856, quoted at Boston, at 85 cents the cask.

4. LABOR. — Here is the great feature which distinguishes English from American farming, and in comparison with which all other points are of minor importance. Low estimates the annual cost of labor, including the labor of hired mechanics, at $2,020, more or less. I am satisfied, from the best information I can procure from various quarters, that labor in New England may be set down at three times the cost of English labor. This is a rough estimate, but as precise as the case admits, and this I believe has been the relative difference for nearly a century. If, therefore, the English farmer paid in this case New England prices, and employed the same amount of labor, he would pay, say, ... $6,000

Total annual expenses, ... $7,150

Total expenses in England, (excluding rent,) as stated by Low, ... 2,870

Difference, ... $4,280

Being nearly *four per cent.* on all the capital.

Produce.

1. VEGETABLE PRODUCE: —

100 acres of oats, 4*s.* per acre, 4,800 bushels; 500 used for seed, and 1,337 consumed by the animals, leaves for sale 2,962½ bushels, valued at 66 cents, ... $1,975.00

240 acres of wheat, 24 bushels per acre,

deducting 120 bushels for seed, leaves for sale 840 bushels, at $1.66, ...	$1,400.00
60 acres barley, 42 bushels per acre, deducting 180 bushels for seed; 2,340 bushels, valued at 91 cents, ...	2,129.40
Total vegetable produce at English prices,	$5,504.40
To bring these to average American prices, say at Albany, we should deduct at least one sixth, ...	920.00
Total produce sold of vegetables, at American prices, . . . , . . .	$4,584.40
2. ANIMAL PRODUCE: —	
This is estimated by Low, in the aggregate at £875 sterling or $4,375. Deduct 2-7 to reduce the same to average American prices,	1,250.00
Net value live-stock sold at American prices,	$3,334.40
Total vegetable and American produce sold, $4,584.40 + 3,350 = ...	$7,934.40
Deduct expenses at American prices, . .	7,150.00
Net profit to the American farmer, who pays no rent, ...	$784.40
Say	$800.00

Thus we see that the Scotch farmer, who should pay his laborers the current American compensation, or in other words that the New England farmer who should employ the quantity

of labor usual in England, could receive scarcely more than a nominal profit. We see, therefore, how little reason there is in the complaint that our cultivation is so much less exact, and the whole appearance of our rural districts so much less finished, than the plains of England, Belgium, and Lombardy. To economize labor must be the first point of every American farmer. He can only employ (I speak throughout this essay of free labor exclusively) one third of the amount which the English farmer would bestow on the same extent of land. Much may be done by good judgment in the use of small means, and there is no truer economy than that which consists in a strict avoidance of slovenliness and disorder; but there is much minute attention which is wholly out of the question here, and no intelligence, industry, or good management, can procure from one pair of hands the results which are accomplished in England by three.

There is much difficulty in forming any precise opinion on the average results of farming in New England, from the great deficiency of accurate statistics. We can find many accounts of the management of particular farms, presented

for premium to our Agricultural Societies, which at first sight appear very thorough and minute. A close inspection, however, shows them to be defective in some particulars which are absolutely essential to the striking of a reliable balance of profit and loss. These accounts are, in most cases, erroneous or deficient in the statement of expenses, or of proceeds, or both. We find, for instance, in the list of expenses, no charge for the labor of the farmer or his immediate family, and little or nothing allowed for the depreciation of working stock or implements, a charge estimated by respectable English writers at 20 per cent. annually on the cost. The statements of produce are still more questionable. The amount reaped from the soil is to all appearance often stated at a very high rate. When we find, for instance, the average crop of Indian corn in several cases stated at fifty bushels per acre, we are compelled to believe either that there is a mistake in the statement, or that the land in question is quite too productive to serve as a fair average specimen. Again, the statement of product frequently embraces all which is actually gathered. In many cases nothing is deducted for the quantity consumed by the fam-

ily or by the stock, though we are told by Colman that the working teams in England are supposed to consume, on an average, one fourth of the gross product of the farm. I have before me, in the Massachusetts Returns for 1853, pp. 16, 17, a statement of a farm which received a premium of the first class, and apparently for good reason.

The expenses are stated, including interest, at $1,003.68. The produce at $2,760.07, and the value of the farm at $7,000.

Here is a balance, after paying interest, of more than $1,750, or 25 per cent. on the whole value of the farm.

Yet on this statement the very committee who award the premium make the following remark.

"This statement, *like all others which we have seen of farming operations*, must be taken with a discount. The amount actually realized from this farm does not probably exceed $1,200 gross cash income, out of which actual expenses are to be paid. All the balance of nominal income is consumed on the farm."

These expenses, without reckoning interest, ($420) are put down at $580. We find that

the blacksmith's bill and interest on cost of tools are reckoned only at $40, to which, if we wish to make good the depreciation, something should be added, say $20, and this would raise the expense to $600. Something should also be added for depreciation in the working animals, or at least in the horse, but of this I make no account. I find no charge made for repairs on the house and other fixtures. Let us, however, take the whole expense at $600, and we have for the net income $600, or $180 more than simple interest, instead of the $1,750 which appears from the account as stated. In other words, the farm yields a net income of about 8½ per cent. instead of 30 per cent., besides what is consumed by the stock and the family. The farmer charges for his own labor, but he makes no charge for manure. From this $600 the farmer is to defray the expense of supporting his family, except so far as it is supported by food raised on the farm. This farm, however, I consider not only a fair but a favorable specimen of Massachusetts farms in general. In the first place it is of greater value and the net returns amount to a more considerable sum. These returns I have stated between 8 and 9 per cent. on the capital invested.

Now, in a work called the Companion to the United States Census of 1850, the average size of farms in Massachusetts is stated at about 100 acres, and the average value at about $3,300.* Let us, however, raise this estimate to $4,000. Now I doubt not that many a farmer on a farm of this value may raise a gross product of 20 per cent. But this amounts to only $800, and the produce which he actually sells will, probably, after paying his expenses of farming, not leave him more than $400 or at most $500, and from this he must pay the education, clothing, and other expenses of his family. For a New England farmer to lay up a large sum of money from the proceeds of farming operations must, therefore, be generally out of the question. This he can never do till he pays less for his labor and manure, or till he raises much more from his land. The first alternative I have never heard spoken of as either desirable or possible. But it is often said that our land may be made more productive. We are told that two bushels may be raised where one grew, and this is said

* In the same work (p. 170) the average size of farms in New England is estimated at about 110 acres, and the average value of an acre at a little more than twenty dollars.

not as an emphatic general assertion, but as a precise estimate. If this were a fact, yet to render it one of any value to the practical farmer, we must prove that this fertility could be procured at a reasonable expense, and with the very small capitals of our New England farmer; no expense can be reasonable which is not very small. But, in truth, the fertility of our land, generally speaking, cannot be increased in a large ratio by any expense not absolutely enormous. The difference of results arising from finished over ordinary cultivation, may be well worth having. Neatness and thoroughness have a value in a thousand different ways. But even the most exact Shaker cultivation could probably not bring out from average land in this State a product of thirty bushels of wheat or sixty bushels of corn to an acre. In p. 94, of *British Husbandry*, London, 1834, it is said that in 1577, each acre, one with another, in England, was represented as capable of yielding sixteen to twenty bushels of wheat or rye, thirty-six of barley, and thirty-two to forty of oats, which, (the modern writer adds,) especially of the two latter, might be considered a fair average of modern

crops, were it not that the far greater quantity of poor land now in tillage reduces the general average. In American Husbandry, London, 1775, it is said of Canada, that the crops were as good as moderate crops in England, that is, about sixteen or twenty bushels of wheat per acre, an average quite equal, I believe, to that of our crops now in our best wheat-growing States. Yet I suppose few deny that American husbandry has been improved within the last three generations.

It may often be practicable to increase the average crop of hay in a large district from one ton to a ton and a half or two tons per acre. But to raise it from two tons to four or five, is what can only be done in a very few highly favored spots. In truth, after we have once brought our land to what may be called a fair average of fertility, any further improvement must be within narrow limits and very hardly gained. Besides, the heavy cost of manure of all kinds, necessary to such increased production, is a most serious impediment. In the improvement of our domestic animals, there is, no doubt, a much greater capability of improvement. A good animal costs very little (if any)

more either of money or labor to raise than an ordinary one, and that little is most abundantly recompensed.

But it is time to recapitulate, by a few observations of a general kind, on New England agriculture.

1. It appears that the rural districts in New England are divided into small farms, not exceeding on an average 100 acres in extent, and from three thousand to five thousand dollars in value. Here, then, at the outset, is a striking contrast between our farms and those of England, where the rent paid by the tenant, yearly, exceeds the whole capital of a New England farmer. The first obstacle, therefore, which presents itself with us, to what is called high farming, is the smallness of the farmer's capital. No profit, however high the rate, on so small an investment, can enable the farmer either to make expensive improvements, or to accumulate merely from the result of his farming operations, a large property. The accounts which we hear of large fortunes acquired in England by skill and industry in agriculture, are of little use to us except as enforcing the great truth, that skill and industry have a value everywhere which can hardly be overrated.

2. The article of manure is nearly if not quite as expensive with us as in England. Few farmers can procure a sufficiency of this article from their own barnyards, or are so situated that they can procure it elsewhere at a short distance, and the cost of a few cords is a heavy tax on their limited capitals.

3. The great item of expense in this country is the compensation of labor. In no other country is this cost at all approached. In England, which stands next to us in this respect, the laborer receives on an average not more than one third of the usual compensation in this country. It is only by working with his men, as well as carefully overseeing them, that a farmer can carry on his business without ruinous loss; nor in any case can he aim at the high degree of cultivation so pleasing to the eye of the traveller in the best cultivated districts of Switzerland, Italy, or England.

4. From the best evidence we can procure, the farming implements of this country are at least fully equal in lightness and efficiency to those of any other; and the same remark may be made with even less qualification on our working oxen. Our working horses, it is believed,

are as yet decidedly inferior to those of England. It results from these circumstances, that a thorough economy in the collection and preservation of manure and in the application of such labor as must be had, in the most judicious manner, are principles which cannot be too deeply impressed on the mind of every New England farmer.

5. Our New England soil, in general, is and has been from the beginning, of very moderate fertility. But still an average farm in New England seldom fails to yield a produce of high value in proportion to the capital employed. The amount of this produce it is exceedingly difficult to ascertain. Statements of crops are often founded in a much greater degree on estimate than on actual weight or measurement. Much of what is produced is consumed as fast as it grows, and perhaps in many cases not more than one half is actually laid up in the barn. But I believe that the value of what is actually gathered in, often amounts to from 14 to 18 per cent. of the capital employed. This, however, we should recollect, is the result in favorable times; for it is to be presumed that all statements made by competitors for premiums, of the produce of

their farms, are those of prosperous seasons. When we speak of average results, some deductions must be made on account of those disastrous years which occur in all countries, and, perhaps, nowhere more often than in our changeable climate, to an extent, not to destroy entirely the farmer's harvest, for no country of any extent could live under such an infliction, but to diminish greatly his net profits. It is obvious, therefore, that it is idle to hold up the idea, that any skill, industry, or economy can enable our farmers to become opulent. Their limited capitals alone would preclude such a result. This result can only be reached in the more hazardous and occasionally more gainful pursuits of commerce or manufactures, where a single prosperous year may sometimes enable a shrewd trader to double his capital. These remarks refer to New England agriculture. As to other countries, where farming is carried on in more genial climates, on richer soils, with large capitals, and with a less liberal or we may say less fair compensation to the actual laborer; to these we may apply the remark of Mr. Webster on the agriculture of the West Indies; "that it is a species of employment in which labor forms an

inconsiderable ingredient in the productive causes, and that it bears more resemblance to commerce than to the hard and plain tillage of New England." We have seen that this may be said, to a great extent, of English agriculture, which bears a much greater resemblance, though after all far from a close resemblance to our own, than does that of any foreign nation. It will be seen that these conclusions are far less flattering to the farmer than those of many agricultural writers. Fairly viewed, however, they are any thing but discouraging. The farmer, certainly, cannot expect that his occupation should yield him a sure and at the same time an enormous profit, that he should multiply his capital as highly and as speedily as is done by merchants or traders, or rather by that small portion of them who are at once enterprising, judicious, and fortunate. In other words, his occupation is not in the highest possible degree both safe and gainful. What business is, or in the nature of things can be? But, after all, fourteen to eighteen per cent. on the capital employed is not a scanty return. What capitalist, who incurs so little risk, receives so much? Our farmers gain a support, sure, comfortable, and respectable, and all this means

much more in this country than in the old world.

They want no reasonable comforts of life, and can bring up their children to their own healthy and honorable occupation, or give them such an education at our respectable seminaries of learning, as to enable them to do full justice to their own talents in any walk of political, professional, or even literary industry, or if so disposed to engage in the hazardous pursuits of commerce or manufactures, with as fair prospects of success as any individuals of the same native capacity. All this may be done, for all this has been done and is constantly doing in many conspicuous instances. The New England farmer would doubtless lay up much more money, if he would live and persuade his workmen to live, like those who actually till the soil in other countries. But, if this were possible, would he act wisely in so doing. The income, indeed, reaped from good land by the farmer, seems much greater in proportion to the cost of production in England than here. There seems to be no question that, in general, the soil of Old England is much more fertile than that of New England. But one material reason why the farmer in that

country receives a larger compensation for his skill and industry than a New England farmer, may be found in the fact that the produce of the soil is divided in a very different way between the farmer and the actual laborer, and that the laborer receives with us a far more liberal, or rather a much fairer compensation. This important distinction results from differences between our social condition and that of the farming population of England, which are unchangeable, and which probably none of us would wish to change.

NOTES.

NOTE A.

THERE is an excellent paper by Mr. Welles, on the grasses of New England, native as well as cultivated, in the 8th volume of the Transactions of the Massachusetts Agricultural Society. He speaks of one or two native grasses as valuable for pasturage. But he does not consider them as superior to our English grasses, and states that they cannot well be propagated by cultivation. The most important native grass in the United States, if we consider the space which it occupies, is the prairie grass of the west. The best account of this which I have seen is in the Agricultural Returns of the United States for 1852–3, in a letter of Mr. Eldred of Wisconsin. He says, "I find the prairie grass well adapted to making both cheese and butter for the summer months, and the flavor and richness of each are not excelled even by the best of tame grass. The only difficulty is in the shortness of time, that the prairie grass is available. It starts late in the spring. There is not generally a full bite until the first of June, then it grows very rapid. By the

first of September it becomes tough and unpalatable, and after one or two slight frosts, worthless." He afterwards says, "It is a mistaken idea of the people of the Eastern and Middle States, that the prairie is not adapted to tame grasses. I have seen no country yield heavier burdens of timothy and clover hay (the large New York clover) than rock prairie." We can infer from these remarks that the prairie grass would hardly repay cultivation, and is likely to be displaced by our favorite English grass. There may be varieties of grass differing essentially from each other which bear the name of prairie grass. On this point I have no evidence.

The celebrated blue grass of Kentucky, is said by an intelligent writer of that State (Patent Office Report, 1854, p. 190), to be the *Poa pratensis*, a grass well known and valued in New England, but not holding rank with the timothy or redtop as an object of cultivation. Mr. Welles speaks of it as follows:—"The next grass, which we shall mention, is the *Poa pratensis* of Linnæus, with us falsely called redtop, a color it never has. This both in Europe and America is the common and prevailing grass of the pastures. It grows in almost every soil and situation, and is one of those materials, which are used in Europe for the manufacture of bonnets. The color of its top or panicle, is of a yellowish brown. The number of florets in the spike varies from three to five. The seed is sometimes saved and sown, but these fine-spired grasses have so minute a seed, that either from exposure to dampness or fermentation or some other causes which it is difficult to prevent or discover, they too often fail of vegetating, by which great injury and disappointment occurs in the wished for crop. Though this grass is among those which

lose the least in drying, yet as it presents little hold to the scythe, it cannot be recommended for culture. It is excellent in our pastures, and comes in naturally, as the artificial grasses go out our mowing lots. Indeed it has a preference generally with our farmers for horned cattle over every other grass. One hundred pounds cut July 17, gave forty-six pounds. It was past flowering."

Since the above remarks were written, Hon. John Welles of Boston, has closed a life uncommonly protracted and highly honorable, September 25, 1855, having nearly completed his 91st year. Of his private and public character generally, it is not my purpose to speak. But his knowledge of agriculture, both in theory and practice, was known in many ways to our community, and his interest in this pursuit continued till he was withdrawn by age and infirmity from all his avocations. His papers on New England grasses, referred to above, are among the best on the subject, with which I am acquainted, and his remarks on forest trees, published in the early volumes of the New England Farmer, are equally valuable. Mr. Welles was the last survivor, with the exception of our honored fellow-citizen, President Quincy, of the distinguished agricultural writers in Boston and its vicinity, who forty years since, did so much to give our Massachusetts agriculture an impulse, which it has not yet lost. I cannot but think that a republication of their essays, would be a great public benefit. It is surprising how much of what they wrote is still valuable for its truth and utility, even when viewed in the light of the greatly increased science and experience of later days.

NOTE B.

The following is a more specific enumeration of some of the striking improvements in our agricultural operations, introduced within the last thirty years in this vicinity. I shall say little on the subject of manures or domestic animals, on both which points I have spoken at some length in the text. I cannot forbear to say, however, on the latter topic, that I firmly believe that much has been gained of late years by the introduction of valuable races of neat cattle from abroad, and that much is still to be gained in the same way, but that I am fully sensible that what is called our native breed is a highly respectable one. It is supposed that they are descended mostly from the Devonshire and Herefordshire breeds, and when we consider the early period at which their progenitors were mostly imported, it is truly surprising that our native New England cattle should be on the whole of so good a quality. It is quite likely that they have materially improved in our country. I believe that our mode of treating them has generally been judicious and kind, and that the climate has been favorable to their health and vigor. A few remarks on this last point may be found in the Essay on the Climate of New England in a subsequent part of this volume.

2. The cultivation on a large scale of roots, which were previously raised in small patches, I refer more particularly to the carrot, is a practice which is now widely adopted in our neighborhood. For the introduction and dissemination of this practice, we are, I believe, greatly indebted to the example and exhortations of President Quincy. The cul-

tivation of the carrot certainly requires great labor, but on good free loams, this labor is amply repaid by the abundance of the crop. The value of this root as food for milch cows, has long been well understood, but as a food for horses, it does not seem to be equally appreciated. In some parts of Belgium it forms, for a great part of the year, the exclusive food of working horses, half a bushel daily to each horse, and with us it has often been used to great advantages in smaller portions mingled with grain.

3. The cultivation of corn and other succulent plants as green fodder, is a practice which I believe was first brought into general notice by Colonel Pickering. It is a resource to which even those who own extensive pastures are often driven by our long droughts. To small farmers, that is, the owners of less than twenty or thirty acres, this course is almost indispensable, and this is a class of cultivators, which as observed by President Quincy, in his valuable pamphlet on Soiling, is rapidly and largely increasing.

4. The stirring of cultivated land as an antidote to drought, was recommended twenty years since by the late Mr. Lowell, and has since received the countenance of agricultural writers here and elsewhere. It is not, however, yet practised as it should be.

5. Subsoiling was scarcely known among us, twenty years since, but is now frequently employed in this vicinity, and daily becoming more popular. Its value as a substitute in a great degree for trenching, which is quite too expensive in this country to be practised on a large scale, is now generally acknowledged in our neighborhood.

I cannot close this brief view of recent agricultural im-

provements (which is any thing but a complete one) without an allusion to the mowing machines lately introduced. It is too early to speak decidedly of their value, but there is good reason to hope, that by the use of these machines, or others constructed on like principles, our farmers will be relieved of the large part of their most severe and trying labors.

The improvements which have taken place in our agriculture during the last thirty years, if fewer in number and less in magnitude, than its ardent friends may have desired, are certainly surprising and gratifying when we consider how much more slowly information must of necessity circulate in rural districts than in more crowded communities. In manufacturing and commercial cities, crowded as they are with population, "information (as once observed by Mr. Webster) is diffused with the speed of electricity." In the more sparsely inhabited agricultural regions, truth, and error too, are communicated and credited much more slowly. Agriculture would probably have been in a much higher state of advancement in all countries, had all that is actually known been recorded and communicated in the same way in which information of like importance, in commerce and manufactures, has been usually preserved and diffused. As it is, an important, and useful improvement in agriculture may have been adopted for years, in one country or district, and yet be utterly unknown elsewhere. Everybody with us has seen the simple and effective contrivance for suspending oxen while shoeing them, which has been employed in New England for generations. Simple and effective as it is, its use seems to be utterly unknown in England, though contrivances somewhat resembling it have been used in some

parts of that country for the shoeing of horses. In that country, as in others, the employment of oxen or horses for ploughing and hauling is a vexed question, discussed at much length in agricultural treatises. One of the leading arguments in those treatises against the use of oxen is the difficulty of shoeing them, a difficulty which vanishes when our method is known. In England, this is generally done by casting the animal, a mode liable to serious objections, and I find it gravely suggested in able English works, that the better way is, to reconcile the ox to the operation, by lifting up his feet occasionally while young, and tapping on his hoofs with a hammer, and by this preliminary education preparing him to stand quietly at the forge and be shod like a horse. I shall close this note by one or two suggestions in relation to the further increase and diffusion of agricultural information. I have before observed that agriculture is peculiarly an experimental art, and it is little else than a repetition of the same thing, to recommend the frequent trial, with proper care and discretion, of Agricultural Experiments. But this must be well done or let alone.

Accurate experiments in any science (and without great accuracy experiments are of very little value) can be carried on by no one, who is not willing to exert the most constant vigilance and patient industry. Every circumstance, which can possibly influence the result, must be diligently noted and faithfully reported. But agricultural experiments are of all others those which it is most difficult to make thoroughly or interpret rightly, because the result may be varied, by causes which the farmer cannot control, or of which he may even be wholly ignorant. Agricultural writers, for in-

stance, abound in specific remedies, to prevent the ravages of this or that formidable insect. The farmer who has suffered from the visits of such an insect during one season, tries his specific the next, and sees nothing of the insect, and his faith in the remedy is fully established. But how does he know that the insect has not been exterminated or driven away by some change in the atmosphere, or that its eggs have not been killed in the earth by the frost? I once heard of a farmer who had suffered much from the squash bug. A friend advised him to surround his squash vines with clam shells. This he did the following spring and the vines were unmolested. On stating the result to another friend he was advised to omit the shells the next season. He did so and the squashes were equally free from the insect. Agricultural experiments must be continued for years, and some of them, more especially of those which are made of trees even for generations, and the most minute, not to say painful accuracy observed, both in making and in stating them. Now this habit of attending to little and apparently trifling circumstances is one which is any thing but prevalent among us. Such attention requires less time and less labor than is generally supposed, but this labor is of a kind to which farmers are generally unaccustomed, and which they will not readily undergo.

It is of still more importance to multiply as far as possible the channels through which agricultural information can be circulated, and opinions on agricultural topics exchanged. Our agricultural and horticultural newspapers and magazines are too prominent in this great and good work to need any notice here.

Our Legislative Agricultural Societies, which hold their meetings weekly during the great part of the session, have done much to diffuse and render permanent valuable agricultural information which might otherwise have rested in the bosoms of its possessors. The formation of small agricultural societies or clubs in our villages, was highly recommended by Colonel Pickering, and it is surprising that so simple, useful, and, as one would suppose, agreeable expedient, has not been more generally adopted. The conversations of a few winter evenings on agricultural subjects would probably do more for the improvement of our agriculture than can now be easily conceived.

ESSAY

ON

FOREST TREES.

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If this country has been highly distinguished in any respect by the bounty of Nature, it is in the number and variety of its trees. If we were compelled to describe the territory of the United States in a few words, we could not do it more philosophically than in the language of Volney, who represents it as one vast forest, diversified occasionally by cultivated intervals.

With the exception of some of the prairies of the valley of the Mississippi, I am not aware that there is any considerable section within our present States which was originally destitute of wood. Beyond the immediate vicinity of our

large towns we find every stream thickly shaded by overhanging branches, and every mountain, with the exception of a few of the highest, covered with a leafy screen of all varieties of shade, from its base to its summit.

The progress of population and improvement, astonishing as it is, has been insufficient to efface to any extent this distinguishing feature of American scenery; and the striking picture drawn by one of our own poets, of the native aspect of the country, has not yet lost its general resemblance:—

"Then all this youthful paradise around,
And all the broad and boundless mainland, lay
Cooled by the interminable wood, that frowned
O'er mount and vale, where never summer ray
Glanced till the strong tornado broke its way
Through the gray giants of the sylvan wild;
Yet many a sheltered glade, with blossoms gay,
Beneath the showering sky and sunshine mild,
Within the shaggy arms of that dark forest smiled."

The extent of our woods is not more remarkable than the various kinds of trees which compose them. It is stated by Michaux, that in the United States there are one hundred and forty species of forest trees which attain a greater

height than thirty feet, while in France there are only eighteen of the same description. Of the solid advantages which we derive from this abundant variety I shall say nothing at present. It needs only a cursory glance to perceive how much it enhances the beauty of our natural scenery. "I was never tired," says an intelligent English traveller, "of the forest scenery of America, although I passed through it from day to day. The endless diversity of foliage always prevents it from being monotonous."

The variety of shape and tints in their green foliage is not, however, the chief distinction of our woods over those of the old world; they surpass them far more in the rich and various hues of their autumnal leaves. This, if not the most striking, is certainly the most unique feature of an American landscape. What natural scenery can surpass in beauty that presented by one of our forests in one of the brilliant and serene afternoons of our Indian summer, when the trees are clothed with a tapestry of the richest gold, and purple, and scarlet, resembling, and almost rivalling, the most gorgeous hues of our autumnal sunsets?

It is not the mere variety of coloring which is

the peculiar characteristic of our fading leaves; this variety exists also in European woods, though to a less extent; for, as has been already stated, their catalogue of forest trees is far more scanty than ours. But their leaves, in divesting themselves of their summer green, lay aside also all their brilliancy, and assume a complexion proverbially dull and faded. It is a peculiarity, on the contrary, of many of our forest trees, that their leaves, in changing their hue, lose little or nothing of their brightness, and that their autumnal dress is not only far richer, but scarcely less lively, than their freshest June liveries. This circumstance is generally ascribed to some peculiarity in our climate, and especially to the manner in which the cold weather makes its first approaches. But this manner varies almost every year, and yet our trees exhibit annually the same splendid changes. For this, as well as for other reasons, we are inclined to think that the peculiarity is not in the climate, but in the trees themselves, and that it is one of those shades of difference which distinguish, in almost every instance, the plants of America from their kindred species in the old world. A transplanted American maple, for instance, would probably undergo

the same splendid transmutations in an English park as in its native forest. This supposition has been formed on much consideration, and is, besides, sanctioned by the opinion of an eminent English botanist, who has resided in this country for several years.

I have observed that scarcely any considerable portion of this country is entirely devoid of magnificent forest trees. But whatever striking instances of the truth of this remark we may find in New England, and more especially in Vermont and Maine, it must be admitted that he who would behold sylvan scenery on its most magnificent scale, should cross the Alleghanies and visit the great valley of the Mississippi. Here he will find vast tracts into which the axe of the woodman has never penetrated. These are covered with a coat of vegetable mould, exceeding in many places the depths of our richest soils. We find accordingly a luxuriance of vegetation to which nothing in our own State affords a parallel. It is true that with us there is here and there a gigantic elm or buttonwood which might take rank with the noblest specimens of western growth; but in travelling in Kentucky or Indiana we find trees at every step of six or seven feet

in diameter; so that most of our woods, compared as a whole with theirs, seem to be but the product of yesterday. Every plant appears to partake of this gigantic character. Thus the wild grape vine, which with us rarely grows larger than a stout walking-stick, in our Western States sometimes surpasses in diameter the body of a full-grown man.

The majesty of our western forests is not a little increased by the circumstance that they are generally free from undergrowth. The banks of the Upper Mississippi especially, are covered with trees of the largest size, shooting up to a lofty height, from the smooth levels or gentle swells of the green prairies beneath, like the oaks in the finest parks of England. So tastefully are these trees grouped by the hand of Nature, and so entirely clear is the green prairie grass from undergrowth, that the spectator can hardly avoid imagining that he is looking, not at a new country, but at one which was once peopled by a highly cultivated community, who have been long since swept away with every vestige of their wealth and refinement except their stately groves and verdant lawns.

I have thus far spoken of our forests merely as

a predominant and magnificent feature of American scenery; but it is scarcely necessary to say that they have other claims to our attention of a far more solid character. It is to our forests that we have been indebted for two hundred years for our fuel and our shelter. How much of the progress of New England, at least since its first settlement by our forefathers, has been owing to the liberality of Nature in this particular! Whatever were the calamities, in other respects, of those much enduring men, they were at least exempted from the extreme and probably fatal suffering to which they would have been subjected in a thinly wooded region. Had the aborigines possessed that determined and unsparing hostility to large trees which seems to have actuated many of their successors, it is probable that these northern settlements would never have had a being.

One of the most remarkable of the forest trees of the United States is the white pine — called in England the Weymouth pine, and known by botanists as the *Pinus strobus*. This tree must be familiar to many readers in various ways, as it abounds in our neighborhood, and as its branches are more frequently employed

than those of any other tree for the decoration of our Catholic and Episcopal churches. It may be distinguished at first sight from every other evergreen growing in this State by the lightness and delicacy of its foliage, as well as by its less formal mode of growth. On a closer view it is found to differ from all our other New England pines or spruces in being what is called five-leaved — that is, in putting forth its leaves in sheaths, each containing five.

This tree is certainly the most majestic in the country when it reaches its full growth in our forests. Though it does not spread in a graceful sheaf like the elm, nor rise up in a regular spire like the fir, it more than compensates for the want of these beauties by its loftiness. None of the productions of the Atlantic States approach it in this particular. It is sometimes said to reach the height of more than two hundred feet; and Michaux actually measured one which had been felled, and which exceeded one hundred and fifty; and the trunk is singularly smooth and straight.

A magnificent appearance is far from its chief recommendation. We know not that we in New England are equally indebted to any other

production of our forests, not even to the oak. Michaux remarks that throughout the Northern States, except in the larger capitals, seven tenths of the houses are of wood; of which seven tenths, three quarters, estimated at half a million, (this estimate was made nearly fifty years ago,) are of white pine.

In the first part of this statement there is a mistake quite remarkable in a writer of such singular research and accuracy. If we except the larger capitals, we ought to say, not that seven tenths, but nine tenths, at least, of houses in the northern States are wooden; indeed, the number of those of a different description may be considered as too small to deserve notice; and of these nine tenths, the great mass are of white pine. This tree owes its selection for this most important purpose to one quality in particular — the small expense of labor at which it can be fashioned and put together.

While it is more durable and better able to bear exposure to the fierce temperature and sudden changes of our climate than any other pine which abounds in New England, it is also lighter, softer, and more free from knots. In favorable situations the diameter of the trunk varies from

three to seven feet; and thus it furnishes planks of ample dimensions for building. This tree has also one important quality, in common with the locust, which is denied to many other of our best timber trees: we mean the great proportion which the heart, or perfect wood, bears even in young trees to the alburnum, or sapwood, being not less than eleven to one in trees of a foot in diameter. In all timber, after felling, it is the sapwood which is the first to decay, and which is as unfit for any useful purpose as the unripened products of Nature generally. Hence it is an important element in the value of the white pine that it ripens its wood at so early a period.

It is true, after all, that in point of durability, when freely exposed to the elements or when set in the ground, its timber cannot compete with many of the harder woods; but, if well seasoned and kept carefully painted, it will endure for centuries without any symptoms of decay, as we find attested by many wooden houses, more especially in our large towns.

Where entirely covered, it seems to be incorruptible. But were its durability less, the other qualities to which we have adverted — namely, its lightness and softness — would form a most liberal equivalent.

It is not easy to estimate how much the rapid advancement of New England may have been owing to the abundance of this valuable tree. The importance of shelter is a point which it requires few lessons from our winter climate to set forth; and by no tree with which we are acquainted could this want be supplied so rapidly and easily as by the white pine. At the value which human labor has always maintained among us, the difference of expense to New England which would have resulted from the general employment of the oak, for instance, instead of the pine, for our houses, would be enormous. In many parts of the valley of the Mississippi, this pine, as well as almost every other species of pine, is exceedingly rare.

The settlers are in consequence obliged to substitute the oak, both for their houses and their furniture. Their dwellings (we speak of the new settlers) are generally of oak, filled in with earth, and are quite inferior, both in appearance and comfort, to those which we find in the newly cleared lands of Maine. We are scarcely less indebted to the white pine for our commercial and naval than for our civil architecture. It is this tree which gives us, not indeed the frames,

but the masts, of our vessels, for which it is admirably fitted, by the degree in which it combines the qualities of durability and lightness, as well as by the straightness of its trunk.

Its place for this purpose, in the Northern and Middle States, could hardly be supplied. During our colonial existence its value was fully appreciated by the mother country; and, more than one hundred years ago, some statutes were passed restricting the cutting of trees proper for masts.

There is no evidence, however, that these statutes were ever enforced; and, however useful in their design, they would interfere quite too much with private liberty to render their renewal desirable, so far as respects the land of individuals. But it is certainly well worthy the consideration of the legislatures of many of our States, whether effectual measures should not be taken for the preservation, and perhaps the propagation, of valuable timber on the public lands within their jurisdiction.

The fame of the white pine has long since extended to Europe, principally by means of the stocks which have been exported to England to supply in part her immense demand for masts and spars.

The living tree has also been introduced into that country, but is not highly appreciated, and we have found no English writer who does it full justice. The truth is, however, that the climate of England is not fitted to its development. The limits within which it flourishes in this country are the 43d and 47th degrees of latitude. Now, no part of the island of Great Britain has a climate which answers to that of this region. The northern extremity of Scotland, which lies in about the 58th or 59th degree of latitude, is visited with winters far less rigorous than the great majority of our own. Besides, there are few situations in Great Britain which furnish the soil in which this tree chiefly delights. The most magnificent specimens of the white pine in this country are found in the depths of our forests, in a virgin soil, covered with the accumulated mould of centuries, and above all on the banks of rivers, or in the beds of large cedar swamps.

In pleasure-grounds it seldom rises to its greatest height, or at least requires a longer time to do so than has yet been allowed in any instance within my knowledge. It grows, however, with

considerable rapidity, and soon acquires a loftiness and bulk equal to that of most cultivated trees; and its highly polished bark, and light, silvery foliage, render it, from the time it springs from the soil, a desirable accession to every shrubbery.

The next of our principal forest trees which I shall notice is the white oak. The general appearance of oaks is more familiar to us of this region than that of any other class of forest trees except the elm and the plane tree. The oak is far less lofty than the pine, and has no pretensions to the elegance of the elm; but, as an emblem of robust vigor, it stands, both in the old and new world, at the head of all the sons of the forest. Such has been its character in all ages. It is also supposed to be a tree of slower growth and longer life than any other; though its superiority in this last respect over the chestnut is far from incontestable. The useful qualities of its wood have also been appreciated from time immemorial in every country in the temperate zone. For these reasons, probably, the oak has been regarded with a degree of veneration from the earliest ages of mankind.

The first sepulchral monument on record was an OAK.* But in no country has it been more valued, more honored or cherished, than in that of our forefathers; and with abundant reason, as forming the chief material of those wooden walls to which they have more than once owed their national existence. Hence it has long been recommended to us by many historical and poetical associations; and the achievements of our gallant navy, as well as the vast benefits which we have derived from our commerce, have given it a new and far stronger claim to our veneration.

Of all the species of this genus which grow in the latitude of New England, the most valued is the white oak (*Quercus alba*). This is easily distinguished from every other tree of the same kind in our vicinity by the whiteness of its bark, and by the persisting, or holding on, of a few of the dried leaves in the winter season. Its leaves are also without prickles or bristles at the end of their lobes — a quality in which it agrees with no large oak in this State except the swamp

* Gen. xxxv. 8. — "But Deborah, Rebekah's nurse, died, and she was buried beneath Bethel, under an oak; and the name of it was called Allon-bachuth" — i. e., *the oak of weeping.*

white oak (*Quercus prinus discolor*). It bears a greater analogy than any other oak to the celebrated oak of England — European white oak, or *Quercus pedunculata.* Which of the two trees furnishes the finer timber, is a question which has been investigated with great care. It is stated by high authority that the wood of the American white oak is lighter, more elastic, and more flexible than that of the English, but that it is, on the whole, weaker and less durable; and this opinion is sanctioned by a large number of English writers. The question has not been fully settled by facts; for some of those who have expressed such an opinion in strong terms conclude by admitting that, after all, American vessels might be no less durable than English, were their timber equally well seasoned.

The white oak was largely employed in the frame of our favorite frigate, which was built nearly sixty years ago. In the course of the very thorough repair to which that vessel was subjected about fifteen years since, many of the white oak timbers of her frame were found in excellent condition; and it was stated on the best authority that in several instances timbers of this description were sound, while others by

their side, of the southern live oak, had decayed.

Now, the superiority of the live oak, in point of durability, over the oak of any other country has never yet been questioned. The English oak, however, if really superior, could be easily multiplied in our Northern and Middle States. It has been already introduced, and some fine specimens of more than twenty years' growth may be seen in our neighborhood.

The timber generally selected for ship-building is what is called the pasture oak. This is greatly preferred to that which grows in crowded forests, where the trees, from their vicinity to each other, are robbed of much of the nutriment which they derive from the soil, as well as of the genial influence of the sun and air. Hence the building of a single large vessel requires the timber of many acres; and as the white oak is constantly felled in great quantities, both for home consumption and for exportation, the period cannot be distant when serious difficulty will be experienced in procuring a supply of this valuable wood.

In this connection it may be proper to make one or two remarks on the felling of trees. It is

generally agreed that the durability of timber depends materially on the season when this operation is performed; but what that season is, is a question on which directly opposite opinions are held by the ablest writers. The principal cause of the decay of wood of all descriptions is thought to be the sap which remains after felling; and hence the desired object is, to procure timber as free as possible from this ingredient. To this end it has been recommended to fell the tree in the winter season, as it is then deemed to contain the smallest quantity of sap; and such, we believe, is the general practice.

This doctrine, however, was opposed with great ability by the late Colonel Pickering, who states, and with truth, that trees are not devoid of sap in winter, but that it exists in abundance, though greatly thickened by the cold. He maintains, therefore, that it is much more difficult to expel than in summer, when in a more liquid form, and that the proper time for felling the tree is, not when it contains the least sap, but when the sap which it does contain may most easily escape or be expelled.

This opinion certainly seems to be the better one; though the winter season is so much more

convenient on many accounts than any other for the procuring of timber that the old practice will probably maintain its ground. But whatever may be thought of the correctness of Colonel Pickering's theory, no one will question the propriety of the suggestion with which he concludes his remarks, that the point should be determined by actual experiments, under the direction of our navy board, or some other high scientific authority.

Besides the white oak, there are four other species in our vicinity which grow to a large size. Of these, the most valuable are the swamp white and the black oak. The swamp white oak is not abundant, and grows only in moist soils. It has been less used than the white oak, partly on account of its rarity; but its timber is heavier, and it is thought that it may be found, on accurate examination, to be superior.

The black oak is valued, not for its timber, which is of an inferior quality, but for its bark; for it is this which furnishes the quercitron, so much used for imparting a beautiful yellow dye to wool, paper, etc.*

* In a communication in the fourth volume of "The New England Farmer," made several years ago by one of our

Next to the pines and oaks, there seems to be no tree in the country of more extensive celebrity than the sugar maple. The extraordinary neatness of its appearance, and the beauty of its foliage, which in summer is of the liveliest green, and in the autumn assumes the richest and most glowing red, are sufficient to recommend it as a beautiful ornament in our gardens and avenues.

most distinguished fellow-citizens, mention is made of the trunks of several large oaks in Dorchester, in one of which he had counted upwards of two hundred annual rings.

The largest oak, and indeed the largest tree, which I have seen in this country, is a white oak which I saw, in 1836, on the estate of the late James Wadsworth, Esq., of Genesee. The tree is from twenty-four to twenty-seven feet in circumference at the smallest part of the trunk. Its age cannot be less than five hundred years; and it must, therefore, have been a majestic tree at the time when Columbus discovered the western world. It appeared to be in a vigorous and healthy condition, and bore on its exterior no marks whatever of decay. It is by no means improbable that this tree exceeds in size many, both in Europe and elsewhere, which are recorded as of greater diameter; for, in the measurement of large trees, it is of great importance to ascertain at what part of the trunk the measurement was taken. Every one must have remarked the difference between the bulk of such trees at the surface of the ground and at a few feet above.

The branches are disposed with much regularity, though without stiffness, and so arranged that their usual outline is an elegant oval. It is to this tree we are chiefly indebted for the beautiful curled and birdseye maple employed in cabinet work, which rivals, if it be not admitted to surpass, in brilliancy and richness, the finest woods of tropical climates. But the sugar maple derives its chief reputation, as well as its name, from the qualities of its sap. A large portion of the sugar used in many parts of the country, the western districts of Vermont and New York, for instance, is derived from the maple. Michaux remarked, nearly fifty years since, that at least ten millions of pounds of this sugar were then annually made in the United States. This quantity is far less than might be procured from the same source in case of necessity. According to Dr. Rush, the northern part of New York and Pennsylvania alone contained at the same period thirty millions of sugar maple trees; and we may suppose each tree to yield on an average two pounds of sugar annually.

The maple sugar can be made of a quality equal to the best imported. It is, however, in a

brown state that it is generally used; and, except in the districts where it is produced, it is less agreeable to the palate of consumers generally than the product of the cane. To manufacture it requires a great expense, not only of labor, but of fuel; and hence it probably cannot be sold at a distance for a price which will enable it to compete with the imported article.

The sap of the tree, or maple juice, as it is called, is greedily coveted by wild and domestic animals, who break through inclosures for the sake of obtaining it, and is generally an agreeable and wholesome beverage. I have been informed, however, of one instance in which it proved to be of a highly intoxicating quality. This circumstance occurred about thirty years since, in the western part of the State of New York. All the sap procured from the maple trees of an extensive district was found to have undergone a vinous fermentation, and children who drank it freely were in some cases rendered delirious for two or three days. I have heard of no other instance of this phenomenon, nor have I learned that any probable explanation has been given of its cause.

The last of our forest trees which we shall notice is one of which we need say but little, either in the way of description or recommendation; we mean our American elm. In a strictly economical point of view this tree is of little value, as neither its wood nor its bark is employed to a great extent in the useful arts. It is subject to the disadvantage of being attacked by the canker-worm, and is one of the first trees to shed its foliage in the autumn. It is a tree, also, which proves rather a troublesome inmate in small gardens and inclosures, as it spreads its roots far and wide, and frequently protrudes them above the surface of the ground, so that it completely monopolizes a large extent of soil. But where a proper space can be allotted to it, there is no tree which rivals it in grace and majesty. Michaux pronounces it to be decidedly the most magnificent vegetable production of the temperate zone. Few who have seen this tree in favorable situations will question its right to this preeminence.

Every one must have noticed the noble elms standing singly on the commons of so many of our villages. These are generally the relics of our original forests; and the care with which

they are now preserved and protected furnishes a striking and gratifying evidence of an improving taste for sylvan scenery.

I have thus spoken of a very few of our native forest trees. It might be gratifying to speak also of several of those of the old world; but to do so would extend this essay beyond the proper limits.

I have already observed that the list of European forest trees is far more scanty than ours, and there are very few of them which would be a valuable accession to our botanical treasures. Many of the most important classes, or genera, of forest trees are common to both continents, such as the oak, ash, elm, etc.

Those trees of the old world and the new which bear the same name generally resemble each other to a great degree; but, in almost every instance, the resemblance stops short of complete exactness. Thus we find that the elms, willows, and larches of Europe and America, though manifestly belonging to the same class of vegetable productions, differ from each other materially, either in their size, their beauty, or the value of their timber.

This seems merely an application of the gen-

eral law of Nature, which leads her to avoid, in all her productions, any thing like mathematical resemblance — a rule of which we have a familiar proof in the fact that no two leaves can be found on any tree which do not manifestly differ in shape and size. There is, however, one tree of the old world which has been rendered so familiar to our imaginations by early associations, both of a poetical and sacred character, that I cannot forbear to speak of it more particularly; I mean the cedar of Lebanon. It is classed with the larches — a place to which it is entitled, among other reasons, by the shape and size of its leaves, and the manner in which they are disposed on its branches. These branches extend themselves to an uncommonly wide distance, are arranged in stages one above another, and are horizontal, or rather slightly inclining to the earth — and thus form an irregular penthouse.

In the opinion of the best judges, this tree owes its beauty partly to this arrangement of its limbs, and partly to the density and the deep green of its foliage. But it is only in its native mountains that we can find any magnificent specimens of this renowned plant; and of these specimens the number is small, and constantly

diminishing. We are told that, in 1789, there were only seven cedars on Mount Lebanon of a very large size, one or two of which were found by measurement to be thirty feet in circumference. These noble trees are probably the growth of several centuries; but we should give ourselves up quite too far to the guidance of our fancies if we supposed, as many writers seem inclined to do, that they were coeval with the days of Solomon.

The whole number of cedars on this spot, large and small, is about a hundred; and they are said to be annually honored by a pompous religious ceremony, attended by several thousand devotees. But however magnificent the appearance of this tree, and however numerous and interesting the associations with which it is connected, we are compelled, by the testimony of the best authorities, to deny to it some of the qualities with which it has long been invested in popular estimation. It has been called, for instance, a lofty tree. To this title it has no pretension, as we have no well-authenticated account of its exceeding the height of a hundred feet, and it seldom rises to much more than half that elevation.

There is also a popular impression that its wood is distinguished by durability. This opinion is derived partly from the representations of the ancients,* and partly from the fact that the timber of its namesakes, the cedars of our own country, is remarkable for this quality.

According to the great majority of botanists, the wood of the cedar of Lebanon is an inferior kind of deal, resembling some descriptions of pine, but less durable. For the purposes of timber, therefore, this tree is unworthy of cultivation. Whether its beauty and its historical and poetical celebrity are sufficient recommendations for its introduction, is a question unfortunately of little interest to us, as there is probably no part of the United States where it could be raised to advantage in the open air. It is true that in its native locality it is subjected to a high degree of cold, as it grows immediately below the covering

* It is well known that the ancients were far from accurate in their botanical knowledge, and that, even in our day, nothing is more common or more vexatious than the great confusion and numerous mistakes which result from describing vegetable productions merely by their popular names.

There is much controversy among botanists whether the name of cedar was not often given by ancient writers to some species of pine or cypress.

of eternal snow which rests on the summit of Lebanon. But the atmosphere even of England is unsuited to its full development, on account of its want of sufficient moisture; and therefore it must be entirely out of the question to suppose that it could flourish in our proverbially bright and dry climate. It seems to partake of the nature of what are called alpine plants; and every gardener knows that such plants are of all others the most difficult to rear, and that it is next to impossible to supply them with a proper equivalent for the constant shade and moisture which they enjoy on the cloud-capped tops of their native hills.

It was my intention to have submitted in this place a few practical hints on the subject of planting; but, as complete directions may be found in books easily accessible, I have concluded rather to give an account of the mode in which the business of procuring timber and boards, commonly called lumbering, or logging, is carried on in the principal timber regions in Maine. This account was furnished me by a highly intelligent friend residing in Bangor, and I trust it will be interesting from its own merit, as well as from the importance of the branch of industry which it describes.

"When a lumberer has concluded to log on a particular tract, the first step is, to go with a part of his hands and select suitable situations for building his camps. In making this selection, his object is to be near as possible to the best clumps of timber he intends to haul and to the streams into which he intends to haul it. He then proceeds to build his camps and to cut out and clear out his principal roads. The camps are built of logs, being a kind of log houses. They are made about three feet high on one side, and eight or nine on the other, with a roof slanting one way. The roof is made of shingles split out of green wood and laid upon rafters. The door is made of such boards as can be manufactured out of a log with an axe. Against the tallest side of the camp is built the chimney — the back being formed by the wall of the camp, and the sides made by green logs, piled up for jams, about eight feet apart. The chimney seldom rises above the roof of the camp; though some who are nice in their architectural notions sometimes carry it up two or three feet higher. It is obvious from the construction that nothing but the greenness of the timber prevents the camp from being burned up immediately; yet

the great fires that are kept up make but little impression, in the course of the winter, upon the back or sides of the chimney. A case, however, happened within a year or two, where a camp took fire in the night and was consumed, and the lumberers in it were burned to death. Probably the shingle roof had become dry; in which case a spark would kindle it, and the flames would spread over it in a moment.

"Parallel to the lower side of the building, and about six feet from it, a stick of timber runs on the ground across the camp. The space between this and the lower wall is appropriated to the bedding, the stick of timber serving to confine it in its place. The bedding consists of a layer of hemlock boughs spread upon the ground, and covered with such old quilts and blankets as the tenants can bring away from their homes. The men camp down together, with their heads to the wall, and their feet towards the fire. Before going to bed they replenish their fire — some two or more of them being employed in putting on such logs as with their handspikes they can manage to pile into the chimney. As the walls of the building are not very tight, the cool air plays freely around the head of the sleeper, mak-

ing a difference of temperature between the head and the feet not altogether agreeable to one unused to sleep in camps. A rough bench and table complete the furniture of the establishment. A camp very similar, though not so large in dimensions, is built near for the oxen; on the top of this the hay is piled up, giving it some warmth, while it is convenient for feeding.

"A large logging concern will require a number of camps, which will be distributed over the tracts so as best to accommodate the timber. One camp serves generally for one or two teams. A team, in ordinary logging parlance, expresses, not only the set of four or six oxen that draw the logs, but likewise a gang of men employed to tend them. It takes from three or four to seven or eight men to keep one team employed — one man being employed in driving the cattle, and the others in cutting down the trees, shaping them into logs, barking them, and cutting and clearing the way to each tree. The number of hands required is inversely to the distance the logs are to be hauled; that is, most hands are required when the distance is shortest, because the oxen, returning more frequently, require their loads to be prepared more expeditiously.

"Having built their camps, or while building them, the main roads are to be cut out. These run from the camps to the landing-places, or some stream of sufficient size to float down the logs on the spring freshet. Other roads are cut to other clumps of timber. They are made by cutting and clearing away the underbrush, and such trees and old logs as may be in the way, to a sufficient width for the team of oxen, with the bob sled and timber on it, to pass conveniently. The bob sled is made to carry one end of the timber only; the other drags upon the ground; and the bark is chipped off, that the log may slip along more easily.

"The teams proceed to the woods, when the first snows come, with the hands who are not already there and the supplies. The supplies consist principally of pork and flour for the men, and Indian meal for the oxen; some beans, tea, and molasses are added. Formerly hogsheads of rum were considered indispensable; and I have before me a bill of supplies for a logging concern of three teams in 1827–28, in which I find one hundred and eighty gallons of rum charged; but of late very few respectable lumberers take any spirits with them, and the logging

business is consequently carried on with much more method, economy, and profit. The pork and flour must be of the best quality. Lumberers are seldom content to take any of an inferior sort; and even now, when flour is twelve dollars a barrel, they are not to be satisfied with the coarser breadstuffs.

"Hay is procured as near to the camps as possible; but as most of the timber lands are remote from settlements, it is generally necessary to haul it a considerable distance; and as it must be purchased of the nearest settlers, they are enabled to obtain very high prices. From twelve to twenty dollars per ton is usually paid. When the expense of hauling it to the camp is added, the whole cost is frequently as high as thirty dollars a ton, and sometimes much higher. Owners of timber lands at a distance from settlements may make a great saving by clearing up a piece of their land and raising their own hay.

"Some one of the hands, who has not so much efficiency in getting timber as skill in kneading bread and frying pork, is appointed to the office of cook. Salt pork, flour, bread, and tea constitute the regular routine of the meals, varied sometimes with salt fish or salt beef. Pota-

toes are used when they can be obtained. Now and then, perhaps, when the snow is deep, they catch a deer, and live on venison.

"The men are employed through the day in cutting the timber and driving the teams. In the evening some take care of the oxen; some cut wood for the fire; then they amuse themselves with stories and singing, or in other ways, until they feel inclined to turn in upon the universal bed. On Sundays the employer claims no control over their time beyond the taking care of the cattle, the fire, and the cooking. On this day they do their washing and mending; some employ themselves besides in seeking timber, and some in hunting partridges, while some remain in the camp and read the Bible.

"They remain in the woods from the commencement of sledding, some time in December, until some time in March, in the course of which month their labors are usually brought to a close by the snow, it becoming too shallow or too deep. If there are heavy thaws the snow runs off, not leaving enough to make good hauling. If, on the other hand, it gets to be four or five feet deep, the oxen cannot break through it to make the path which it is necessary to form in order to get at each individual tree. The men and

teams then leave the woods. Sometimes one or two remain, to be at hand when the streams open. I know one who last winter stayed by himself in the woods, fifteen or twenty miles from the nearest habitation for the space of twenty-eight days, during which time he earned $203 by getting in timber with his axe alone, being allowed for it at the same rate per thousand that the lumberers were in getting it in with their teams. He found some berths in the banks of the stream, where all that was necessary was, to fell the tree so that it should fall directly upon the water, and there cut it into logs to be ready for running.

"When the streams are opened, and there is sufficient freshet to float the timber, another gang, called 'river drivers,' takes charge of it. It is their business to start it from the banks and follow it down the river, clearing off what lodges against rocks, pursuing and bringing back the sticks that run wild among the bushes and trees that cover the low lands adjoining the river, and breaking up jams that form in narrow or shallow places. A *jam* is caused by obstacles in the river catching some of the sticks, which in their turn catch others coming down; and so

the mass increases until a solid dam is formed, which entirely stops up the river and prevents the further passage of any logs. These dams are most frequently formed at the top of some fall; and it is often a service that requires much skill and boldness, and is attended with much danger, to break them up. The persons who undertake it must go on to the mass of logs, work some out with their pick poles, cut some to pieces, attach ropes to others to be hauled out by the hands on shore, and they must be on the alert to watch the moment of the starting of the timber, and exercise all their activity to get clear of it before they are carried off in its tumultuous rush.

"Some weeks, more or less, according to the distance, spent in this way, bring the timber to the neighborhood of the saw-mills. A short distance from Oldtown, on the Penobscot, there is a boom established, extending across the river, for the purpose of stopping all the logs that come down. It is made by a floating chain of logs, connected by iron links, and supported at suitable distances by solid piers built in the river; without this it would be impossible to stop a large part of the logs, and they would be carried

on the freshet down the river and out to sea. The boom is owned by an individual, who derives a large profit from the boomage, which is thirty-five cents per thousand on all logs coming into it. The boom cost the present owner about $40,000. He has offered it for sale for $45,000. It is said the net income from it last year was $15,000.

"Here all the logs that come down the Penobscot are collected in one immense mass, covering many acres, where is intermingled the property of all the owners of timber lands in all the broad region that is watered by the Penobscot and its branches, from the east line of Canada, above Moosehead Lake, on the one side, to the west line of New Brunswick on the other. Here the timber remains till the logs can be sorted out for each owner and rafted together to be floated to the mills or other places below. *Rafting* is the connecting the logs together by cordage, which is secured by pins driven into each log, forming them into bands like the ranks of a regiment. This operation is performed by the owner of the boom. The ownership of the timber is ascertained by the marks which have been chopped into each log before it left the woods, each

owner having a mark, or combination of marks, of his own. When the boom is full only the logs lowest down can be got at; and the proprietors of other logs must wait weeks, sometimes months, before they can get them out, to their great inconvenience and damage.

"After the logs are rafted and out of the boom, a great part of them are lodged for convenience in a place called Pen Cove, which is a large and secure basin in the river, about two miles below the boom. From this cove they can be taken out as they are wanted for the mills below. While in the boom and at other places on the river they are liable to great loss from plunderers. The owners or drivers of logs will frequently smuggle all that come in their way without regard to marks. The owners or conductors of some of the mills on the river are said to be not above encouraging and practising this species of piracy. Indeed, timber in all its stages seems to be considered a fair object for plunderers, from the petty pilferer who steals into the woods, fells a tree, cuts it into shingles, and carries it out on his back, to the comparatively rich owner of thousands of dollars.

"When the logs have been sawn at the mills there is another rafting of the boards, which are

floated down the river to Bangor, to be embarked on board the coasters for Boston. In this process they are subject to much injury: first, by the mode of catching them as they come from the mill sluices, the rafters making use of a picaroon, or pole, with a spike in the end of it, which is repeatedly and unmercifully driven into the boards, taking out, perhaps, a piece at each time; secondly, by the holes made by the pins driven into the boards in rafting; and, thirdly, by the rocks, and rapids, and shallows in the river breaking the rafts to pieces and splitting up the boards as they descend. These inconveniences will be partly remedied by the railroad now in operation, unless other inconveniences in the use of it should be found to overbalance them.

"The kinds of timber brought down our rivers are pine, spruce, hemlock, ash, birch, maple, cedar, and hackmatack. Far the greater part of it is pine. The lumberers make about six kinds of pine, though they do not agree exactly in the classification or in the use of some of the names. The most common division is into pumpkin pine, imber pine, sapling, bull sapling,* Norway, and

* All the kinds here named, with the exception of the last two, are varieties of white pine.

yellow, or pitch pine. The pumpkin pine stands preëminent in the estimation of the lumberers, because it is the largest tree, and makes fine, large, clear boards. They are soft and of a yellowish cast. The timber pine and saplings are the most common. The former is generally preferred, as being larger and more likely to be sound; yet the saplings are said to make the harder and more durable boards. The common sapling grows in low lands, generally very thick, but much of it is apt to be rotten. The bull sapling is larger and sounder, grows on higher land, and is mixed with hard wood. The Norway pine* is a much harder kind of timber than the others. It is seldom sawed into boards, though it makes excellent floor boards, but it is generally hewn into square timber. In the Provinces it bears a higher price than the others. There is not much of it brought to market, and it is not very abundant in the woods. The yellow pine is very scarce, if to be found at all, in that region.

"I will conclude with some remarks upon the different modes of operating made use of by

* This pine is called also red pine, from the color of its bark.

owners of timber. These are three. One is, for the owner to hire his men by the month, procure teams, and furnish them with equipments and supplies. A second is, to agree with some one or more individuals to cut and haul the timber, or cut, haul, and run it, at a certain price per thousand feet. The third way is, to sell the *stumpage* outright; that is, to sell the timber standing.

"The first mode is seldom adopted unless the owner of the timber is likewise a lumberer, and intends to superintend the business himself. The second mode is very common. It is considered the most saving to the owners, because the lumberer has no inducement to select the best timber and leave all that is not of the first quality; to cut down trees and take a log, and leave others to rot that are not quite so good, but which may be well worth hauling. Its inconveniences are, that, as the object of the lumberer is to get as large a quantity as possible, he will take trees that are not worth as much as the cost of getting them to market, and which, besides being of little value themselves, render the whole lot less salable by the bad appearance they give it. The owner, too, is subject to all the losses that

may happen in running the logs down the river. Very frequently he is obliged to make one contract to have the timber cut and hauled to the landing-places, and another to have it run down; for the river drivers are a distinct class from the lumberers. Most of them, indeed, are lumberers; yet it is but a small part of the lumberers that are river drivers. A great part of the lumberers are farmers, who must be on their farms at the season of driving, and therefore cannot undertake any thing but the cutting and hauling. They are paid for the number of thousand feet they deposit at the landing-places; and the logs being surveyed, or scaled, as they are hauled, their object is to get as many thousand as possible on the landing-places; while the river drivers may be very careless about getting them all down, and the owner may never receive the whole quantity he has paid for cutting and hauling. In operating in this mode, the owner usually furnishes the supplies, provisions, etc., and the lumberer procures the teams and hires the men. The owner commonly does not bind himself to pay before the logs get to market, and he frequently makes a contract for his supplies on the same condition; in which case he has to pay

from twenty-five to thirty-three per cent. more for his goods than he would dealing on cash or common credit. Sometimes, when there is no freshet, the logs do not get down until the second year; and then the trader and lumberer both suffer for want of their pay.

"The third mode is the simplest and easiest for the owner. He avoids all trouble of furnishing supplies, of watching the timber on the river, and of looking out for a market. But he must have a man of some capital to deal with, as he furnishes his own teams and supplies, and pays his men, receiving very heavy advances. The purchaser of it has no interest to cut the timber savingly, and he sometimes makes dreadful havoc among the trees, leaving a great deal of valuable stuff on the ground to rot. And if he selects only the best trees in a berth, much of the timber left standing may be lost, because no one will afterwards want to go into that berth from which all the best trees have been culled. It is common now, in all large concerns, for the owner to employ a man to pass the winter in the camps, living alternately at one or another, for the purpose of scaling the logs, keeping a correct account of them, and seeing that the timber

is cut according to the contract. But, after all, there is always found to be a considerable difference between timber cut by the thousand and that which is cut on stumpage.

"Each mode has its troubles; but I think that owners at a distance will manage their concerns with least vexation by selling the stumpage, provided that they have honest men to deal with." *

The public attention is of late, we hope, more alive than it has been to the value of our forests, to the necessity of economizing what yet remains of these rich national treasures, and of replacing what has been so carelessly wasted. This necessity is every day making itself more manifest. Fuel has already become scarce in our seaports, or rather on our whole sea-coast — a fact worthy the serious consideration of those who reflect that the sufferings of the poor from the want of this article are probably greater than from all other causes united.

Our best timber also is becoming more and more costly, and our civil and naval architects are constantly driven to the employment of that

* I am indebted for the above interesting account of the mode of procuring timber in Maine, to Henry Warren, Esq. of New York, formerly a resident in that State.

of inferior quality. The live oak of the Southern States is already procured for our navy yards with great difficulty, and in fifty years will probably disappear from our soil; and our own white oak, as well as our other most valuable timber trees, must follow at no very distant period. It is in the power of every one who possesses a few acres of land to do much to arrest this mighty evil; and what might not be anticipated from a simultaneous effort on the part of cultivators in our Commonwealth, or even in a single county! and all this at the expense, on the part of each individual, of a few shillings of money and a few hours of interesting labor. If we owe any thing to posterity, in what way could we confer on them so great a benefit at so cheap a rate?

It is not, however, strictly true, or rather it is not the whole truth, to say, with Virgil, that he who plants benefits his remote posterity. A friend of mine once observed that those who set out forest trees reminded him of the student, who, on hearing that a crow would live for a century, bought a young one for the sake of watching the experiment. As a stroke of humor, this remark is privileged from criticism; but as

a statement of fact, it must be received with much qualification. It is no uncommon circumstance to find oaks of twenty years' growth of more than a foot in diameter and of forty or fifty feet in height; and I have seen an English willow of only double that age, measuring, at several feet from the ground, more than seven yards in circumference.

Were planting commenced at the time when our young men usually enter on their professions or their business, how many might live to enjoy the shade of majestic groves of their own raising!

These remarks may derive some additional interest from the fact that a taste for rural occupations is rapidly springing up and extending itself in our large cities, and that objects of this description are gradually absorbing more and more of the capital as well as the intelligence of that portion of our community. Where, indeed, could they find a source of entertainment more pure, more copious, or more beneficial to themselves or their fellow-citizens? To say nothing of the value of forest trees for what are strictly denominated useful purposes, let us ask, in what way any individual among us can do more to

decorate and beautify the country? How many millions have been devoted in this as well as in other communities to architecture! and yet how little have the results corresponded to the time, the effort, and the money so expended! For one chaste and magnificent edifice we have ten irregular and disproportioned piles, countenancing, and almost justifying, the sweeping remark of a distinguished author, that the genius of architecture had shed its malediction on America. But he who rears a stately grove or avenue bestows an ornament on his native land which none but a Vandal would wish to destroy.

How much has been done in Boston and its beautiful environs by the taste and public spirit of a few individuals! To pass over numerous other instances, we are indebted to some unknown benefactor of former days for the chief ornament of the city — the triple colonnade of weeping elms in the Mall; and it is owing to the good taste of another accomplished individual of later days (the late G. W. Brimmer, Esq.) that the majestic, or, as we may now call them, the sacred, groves of Mount Auburn were rescued from the woodman's axe.

It is not merely, however, to those who are or

may be practically engaged in the propagation or preservation of forest trees, though these I hope are not few, that these remarks are directed. Though comparatively a small number may be the planters or the owners of groves or of gardens, all may be admirers of forest scenery. For the indulgence of such a taste we have the highest intellectual authority. "A tree in full leaf," says Lord Bacon, "is a nobler object than a king in his coronation robes." But it is in a community like our own, above all others, that a taste for the beauties of forest trees, as well as an acquaintance with their nature and uses, should be carefully cultivated. It is sufficient to recommend it that it furnishes a never-failing source of occupation and amusement to those who travel in this country, and a strong additional inducement to the general adoption of this practice, so essential, and at the same time so neglected.

Personal intercourse, if not the only, is certainly the chief, means by which the inhabitants of the different States of our widely extended Union may be enabled to acquire a proper knowledge of the wants and the character of each other, and, above all, to cherish those feel-

ings of regard so essential to the prosperity, if not the existence, of our nation. The press, however great the obligations we owe it, is of necessity always an imperfect, and sometimes an unfaithful, mirror of public sentiment; and it is to personal intercourse, and to the spirit of mutual fairness and friendship which such intercourse will assuredly generate, that we must look to supply the deficiencies and correct the aberrations of that mighty engine of good and of evil.

It were to be wished, indeed, that the practice of travelling extensively in our own country were often pursued, at least as a preliminary to a European tour. We should not find in that case, as we think we now do in some instances, the most incorrect representations of the character and manners of our population, proceeding from the pens of our own tourists in other countries. To many of our best educated and most accomplished men the interior of other States, if not of their own, is a *terra incognita*, and this, too, in spite of those facilities of communication which exist in the United States to a greater degree than in almost any portion of the old world.

I need not state how thinly this country is peopled in comparison with any other in an equal state of advancement, nor repeat how large a portion of those wide spaces which separate our principal settlements from each other is covered with magnificent forests. The traveller who can relish the beauties of these splendid collections of vegetable wonders can have few intervals of idleness or weariness.

Yet, however valuable we may consider a taste for these prominent beauties of our own scenery merely as a never-failing source of occupation and enjoyment, there are still other reasons of the highest moment why such a taste should be anxiously cherished; we mean as one of the principal sources of an ardent and deep-felt patriotism. We trust that our country has, in the view of all of us, other qualities than the beauties of her natural scenery to recommend her to her proper rank in our estimation. There is in her institutions — political, intellectual, and religious — more than enough to justify us in the preference which we give to our native land over all others.

But patriotism, wherever it has existed in a high degree, has been, I apprehend, a *sentiment*

as well as a principle, and is something more than a cold feeling of preference. It is, in truth, an emotion of a complex character; and if we would cherish towards our country an enthusiastic attachment, we should not suffer ourselves to be blind to those charms, whether of nature or of art, which may recommend her to our fancy as well as our sober judgment.

Why should not the mind of an American dwell upon those majestic forests, whose beauties are commemorated throughout the civilized world, with something of the feeling which stirs in the bosom respectively of a patriotic Frenchman or Englishman when his thoughts revert to the vine-covered hills and gay regions of France or the spreading oaks and verdant lawns of merry England?

It is truly gratifying to reflect on the progress which has been made within a very few years in the study and development of the internal resources of this country.

In former times, the political condition of Europe, and the embarrassments in which we were involved by the conduct of the leading belligerents, formed not only the predominant, but the sole, topics of deep public interest. Little

time or thought could be spared, little at any rate was spared, for the examination and improvement of our internal condition. What, for instance, had been done for the advancement of our agriculture and manufactures? and what was known of our coal-mines or our quarries? Such was the state of things from the very foundation of our national government to the signing of the treaty of Ghent. It is one of the chief national blessings which have resulted from our present peaceful condition that we have been enabled and induced to turn our thoughts *inward;* that the vast natural riches of our land are no longer trodden underfoot without the slightest investigation, nor its majestic and beautiful scenery passed by with a heedless glance. Whether we regard this spirit of investigation merely as political economists, or as moralists and patriots, whether we look to its effects on the wealth or on the happiness of our community, it is certain that to cultivate and to cherish it is a sacred duty.

ESSAY ON ORCHARDS.

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THE raising of fruit-trees is a branch of agriculture which engaged the attention of our puritan fathers at a very early day, and their progress therein, was, all things considered, truly surprising. The credit of taking the lead in this most pure and refining, as well as delightful and profitable department of industry, is due, if to any one, to John Endicott, whose grave was left unmarked by any monument, but whose venerable pear tree yet survives the lapse of seven generations of men, to bear living testimony to his tasteful and benevolent industry. His example soon found many followers, and even in the first hundred years of New England history, all the fruits generally raised in English gardens, were

commonly cultivated here. Our horticulture received an important accession on the arrival of the French Huguenots in the early part of the eighteenth century, who brought with them their national taste for fine fruits, and introduced several, which yet stand at the head of the list of our cultivated varieties. From that time to this day the cultivation of fruit of all descriptions has been generally extended throughout our most thickly settled districts, and many of us can remember the time, when, in our most crowded cities, a garden of greater or less extent was considered an indispensable appendage to every tenement of any value.

Horticulture, if a less conspicuous and honored art then, than now, was by no means a neglected one, and its rapid advance of late years must certainly be owing, in no small degree, to the broad foundation which had been effectually though quietly laid by our predecessors. The advantages which the community have derived from the unostentatious labors and instructive writings of such men as Samuel G. Perkins and Robert Manning, to forbear all mention of the living, if difficult exactly to define, are not

therefore to be less gratefully appreciated. Nor can I forbear, in this connection, to notice the recent loss of Mr. Downing, one to whom we owe the most complete work on American Fruit-Trees, if not the only one, to which that title can fairly be given; a gentleman whose extensive research and acute discrimination rendered him a valuable counsellor to our greatest adepts in gardening; while his clear and unostentatious common sense and unaffected enthusiasm enabled him to render that pursuit easy and attractive to the most uninstructed. Few in any country have done more to promote the comfort and refinement of rural life, and happy and honored will be any man who may worthily fill the void left by his deplorable death.

I now proceed to a few practical remarks on the cultivation of the apple, although it is obvious that much which may be said on this, must be equally applicable to other fruit-trees, and indeed to trees generally. In an essay like this, it appears unnecessary to give either a botanical description, or a historical account of this well-known plant. It has been, as already intimated, common among us from the

very beginning, and many specimens of apple trees daily strike our eyes, which cannot well be of much less age than a century. One species at least is indigenous, but is less remarkable for the size and flavor of its fruit, than the rich perfume of its blossoms. It has been but sparingly introduced into our gardens. Our orchards are mostly made up either of grafted fruit-trees, or of natural plants from their seed. Near our large towns, the rearing of nurseries of apple trees has become a distinct business, and plants already grafted or budded, and of sufficient size to be finally planted out, can easily be procured at a moderate cost. But many may prefer to rear and graft their own trees, and this requires only a moderate degree of interesting labor, and the proprietor is more surely protected against any mistake as to the kind of fruit, than he can always be in taking his trees from an extensive nursery.

The rearing of nurseries is, I believe, well and generally understood. It may be questioned, however, whether the young trees would not be more vigorous if they were less crowded, and thus exposed more freely in their early growth to the action of the sun and air; in other words, if

the nursery were made, so to speak, an orchard in miniature. Four feet between the trees, in one direction at least, might not be thought too great a distance. Many eminent English and French writers caution us against making the soil of the nursery too rich, on the ground that when the tree is finally removed, it may be to a poorer soil and may suffer from the contrast. But this is denied by other equally high authorities, and it would surely seem a better rule, to say that *we should treat the tree, as well as possible, at all stages of its growth.* A vigorous plant will be likely to bear ill management as well as to requite good, better than a feebler one. If the tree receives fair treatment in the orchard, and if it is not to be so treated it should not be set out there, it can suffer nothing from its previous good condition.

The best ground for an orchard is said by English writers to be a hazel loam, of the depth of three feet. Doubtless this is true, but it is not every one whose land is of this quality, or who can render it so, without burdensome expense. The apple, in fact, is far from fastidious, and though in this, as in most other cases, the deeper the mould the better, yet the tree will

grow well in almost any soil which is not very light and poor. The best ground seems to be an old grass field which has been previously broken up and cultivated for a year or two, as there are few better manures for any fruit-trees than the sod itself, when well rotted.

Where the planter has the choice, a hill-side seems better than a level, as affording a fairer exposure to all the trees, insuring a better drainage, and securing them against the unseasonable frosts, which are most apt to seize first on plants in the low grounds.* It seems to be fully agreed, that before the trees are set out, the whole field should be stirred to the depth at least of fifteen or sixteen inches. The most effectual way of doing this is, unquestionably, by trenching with the spade. But this cannot be done, even if no manure be dug in, at a less expense than fifty dollars per acre, a sum which, in most districts of New England, is much more than the whole

* While any slope seems preferable to a level, a southern one is, I think, less eligible than either an eastern or northern one. On a southern slope, the trees often prolong their yearly growth too far into the autumn, and the young wood, in consequence, is less perfectly ripened, and suffers from the subsequent cold.

value of the land. Still, this is only to be done once, and it is far from certain that the expenditure would be unprofitable.

The same object, however, may be secured to a great extent by subsoiling, which can be effected at a quarter part of the cost. The soil below is thus broken up, without being brought to the surface, and the whole bed of the orchard rendered light and easy to be penetrated, both sideways and downward, by the young roots of the trees. It is a question often asked, whether the ground of an orchard should be tilled, or merely a circle cleared from grass round the stem of the tree. The latter course, though little countenanced by writers, is often practised, probably from an unwillingness to sacrifice the hay crop, and a belief that the circle round the tree, if kept properly stirred, will afford sufficient room for the growth of the roots. This, however, is an unsafe supposition, for if the tree be thrifty, the roots will extend themselves to the limits of the cleared space long before the farmer is aware of the fact. They will then meet with a comparatively hard rim, and the tree will be, so to speak, in the situation of a potted plant. Besides, if merely a space of a few feet is left

round the tree, then, to keep these spaces well weeded and thoroughly stirred, requires a degree of vigilance and industry which it is not easy to exercise, and which it is believed is in fact seldom exercised. If we regard the growth and fruitfulness of the tree as the great object, there is no doubt that orchards should be kept in tillage, as long and as thoroughly as it can be done, without injuring the roots of the trees. This cannot well be for more than ten or fifteen years, as, after such a period, those roots will have spread themselves so widely, as to monopolize the whole ground, although the occasional stirring of the surface by scuffling may even then be highly beneficial. The crops raised should unquestionably be of those kinds which admit of hoeing, as they exhaust the soil less than what are called white crops, and as the effects of the great disadvantage of our climate, *drought*, are obviated both by the shade afforded to the earth by the plants, and by the moisture, which, whatever the cause, unquestionably follows from the stirring of the soil. A further important preventive of the dreaded effects of our dry summers, may be found in mulching the ground, round the foot

of the tree, with moss, leaves, or some other litter, and it would be easy to mention instances, in which hundreds of young trees have been saved by this cheap and simple process. It is scarcely necessary to say that when an orchard is tilled, it should be generously manured, so that no more of the richness of the soil may be taken from it, than is restored, and it is probably equally understood, that unmixed barnyard or other animal manure should not be allowed to come in actual contact with the bark of the tree. It is time to speak in particular of the operation of setting out the tree. Preliminary to this, as every one agrees, should be the digging of roomy holes to receive the plants. Three feet in diameter, and a foot or more in depth, are the least dimensions which I find recommended by any writer.* The distance at which the trees should be set is a point on which there is some difference of opinion, and a still greater variety in practice. Forty feet every way is not too much, and he who adopts this rule, will be surprised to find in how few years the extreme ends of the

* It will be observed that I have mentioned this depth as the least which I have seen recommended. From four to six inches deeper, I should certainly think preferable.

branches will meet. The square is generally preferred I believe to the quincunx, or any other kind of arrangement, as more convenient for agricultural operations.

The time of year at which trees should be set, is a question much debated by English and French horticultural writers. In Europe, the autumn seems to be generally preferred; and there is a proverb quoted in the best English works on gardening which runs, "Plant a tree at Michælmas (September 29) and command it to grow; plant it at Lady-Day (March 25) and entreat it." This rule is, however, often qualified by good English and French writers, who state that in heavy or moist ground, trees are best planted out at the latter period. The spring is certainly preferred in New England. Now when we consider that our short and capricious spring is the very busiest portion of the year, and that much of our autumn is a time of comparative leisure, it is fair to presume that our farmers did not depart from the habits of their English ancestors without good reasons. One of these reasons may have been the great length and rigor of our winters, which leave the tree little chance of establishing itself in the soil, before the ground is

locked up by the frost. It must be admitted, however, that the practice of autumnal planting has scarcely had a fair trial, certainly not in our day.

To the success of planting, however, at any time, there are two most essential requisites. The first is, that the tree be properly taken up. By many persons, young fruit-trees are actually torn from the ground, and leave a large part of their slender rootlets behind them. Now all naturalists agree that these small fibres are in fact the organs through which the tree draws the greater part of its nourishment from the soil, while the main roots are in this respect comparatively inactive: and yet trees are often sold with scarcely a root of less than a quarter of an inch in thickness. The second requisite is that the tree be carefully replanted. Many who plant a tree, says Marshall, seem to think it enough to hide its roots in the ground; and we may add that they are often so effectually hidden, as to give no indication afterwards of their existence. It must be obvious that the less the time which elapses between taking up and replanting, the better; and that the roots ought to be kept reasonably moist during the interval.

The tree should be replanted in a bed of rich earth finely pulverized. This should be moistened; but the practice of very copious watering at the time of planting is condemned by Cobbett, and many other authors, and is of very doubtful expediency. There is reason to fear that many trees have been injured by a treatment adapted only to aquatic plants. Some writers have suggested the expediency of placing a layer of stones under the tree, in order to prevent the roots from striking downwards, and compel them to spread themselves near the surface of the soil; but I apprehend that the direction of the roots may be safely left to nature, and that there is no necessity of obstructing her in her operations. I doubt not, however, that the stones may have operated beneficially in another way, that is, by preserving a greater degree of coolness and moisture in the ground, and thus fortifying the tree against the effects of dry weather; but it is very questionable whether they render any greater benefit on the whole, to the tree, than it would derive from an equal quantity of good loam.

As to the depth at which trees should be set out in the soil, there seems to be a general con-

currence of opinion that it should vary little, if any, from that at which they have previously stood in the nursery; but as the earth round newly planted trees is apt to settle, it may be prudent in the first instance to plant them about an inch deeper.

Stakes are sometimes used for the support of young trees; but if the tree be properly planted, they cannot be necessary, and may interfere seriously with the roots. If the trees are well set, they can certainly hold their ground without any artificial support. The spreading out of the rootlets with great care is of much greater consequence; and the time which, to a careless observer, may seem to be wasted in doing this with great nicety, will be amply repaid in the end by the vigor and fruitfulness of the tree.

After the tree is fairly planted, it is supposed by many, at least if we may judge from the appearance of some of our orchards, that all the planter's labors are over, and that he has only to permit it to grow. Plant a tree, said the Scotch farmer to his lazy son, and it will grow while you are sleeping. We cannot, however, say with equal truth that, if the planter sleeps all the time, the tree will grow in like manner.

Constant vigilance is necessary, especially with respect to young trees, to secure a regular and well-ordered growth, and a proper degree of exposure to the light and air; and, more especially, to guard the tree against the withering effects of drought, and the ravages of disease and insects. It has been calculated, and I believe correctly, that if the labor which is required in a single season upon young trees, especially where the orchard is not kept in tillage, were fairly averaged, it would not amount to less than one month's labor, of one man, on each hundred of trees. If the ground is tilled, much of this labor will be given to the trees incidentally. It will still, however, be necessary to dig or hoe the ground near the trees, where the plough cannot safely be driven, and the hoe would seem to be the better instrument, as less likely to injure the roots. Care must be taken, also, to clear away suckers, and to prune off all irregular limbs. Less pruning seems necessary with us than in other countries. There it may be best to throw open the head of the tree to the light and air, but our fierce suns and strong winds will penetrate any common mass of foliage. Little more is requisite than to prevent the limbs from cross-

ing and chafing each other. Our chief care, however, is required to protect young trees from drought, disease, or insects.

Allusion has been already made to the first of these topics. It is brought home to the farmer's mind in almost every summer. If we should select any one feature of our climate as its peculiar characteristic, we should specify our long and parching droughts. Artificial watering, every one knows, is out of the question, since one thousand barrels of water would be requisite to moisten an acre of land as thoroughly as is done by a shower of a single inch. Two great remedies against this unavoidable disadvantage, seem, as I have already said, to be, first, shading the ground at the foot of the trees by hay, leaves, or some other mulching; and secondly, and chiefly, stirring the surface of the soil. The effects of this last expedient, when well followed up, (as it very rarely is,) are truly astonishing. Whether it brings the moisture up from below, or down from the atmosphere, or prevents its escape by dividing and breaking up the soil, and thus rendering it less fit to conduct the moisture off, are questions of chemistry. The fact that

moisture is in some way produced, is equally certain and ascertained.

An intelligent farmer in this neighborhood once remarked, that, in putting in his turnip seed, he always followed the rule of the 25th of July, wet or dry, and being asked what course he took if, as often happened, a severe drought prevailed at that time, answered that he stirred the land till he raised a moisture. Our trees seldom suffer from the opposite cause, excess of dampness, unless standing in absolutely wet land, in which case thorough draining is the obvious and only remedy.

On diseases, it may be observed as a preliminary remark, that, with respect to many of them, feeble and infirm trees are most in danger of being attacked. A healthy and vigorous plant like a healthy and vigorous man, escapes their assaults, and hence the best preservative of a tree is to keep it well nourished and in good order. This is particularly the case in regard to the mossy coat which often gathers on the trunks and boughs of young apple trees; for we find such trees, when thrifty and well cared for, often exhibit a bark as smooth and

shining as it could be rendered by the most careful washing.

Where the moss has once gathered, it can generally be removed by a solution of strong washing soap, and scraping the bark.* Should any limbs die, there can be no other course than to prune them off, taking care to protect the wound effectually from the weather.

If the trunk is decayed, the removal of the decayed portion, and the filling in the place with clay, may arrest the evil. It is not to be supposed, however, that any application can cause the cavity to be filled up by a new growth from within. This Forsyth pretended to do with his famous composition.† He received several thousand pounds for his secret from the English Parliament. The slightest knowledge of physiology should have taught them, that a tree increases

* The moss may be removed more speedily by a solution of potash, but this, if too strong, may injure or destroy the tree. A wash of one pound to two gallons of water could, I have no doubt, be safely used.

† This (see Mass. Agricultural Repository, Vol. I.) was merely a mixture of cow manure, lime rubbish, wood ashes, and sand. Its only use could be to protect the wood from the weather, an end quite as well answered by simple clay, or any adhesive substance.

its bulk entirely by new layers on the outside of the old wood. Hence when a cavity takes place in the trunk of the tree, it is never filled up. If, however, the tree be young and vigorous, it is often grown over, and the tree outside appears as sound as ever, and in fact may grow and bear fruit for many years afterwards.

It should, however, be borne in mind that a tree, like every other living thing, has its regular period of life. Many forest trees are endowed with a longevity which has no parallel short of antediluvian history. There are oaks in this vicinity which were doubtless stately trees when the first white man set his foot on our shores. The regular duration of the apple tree is much more limited, and, according to our most accurate investigations, does not, in ordinary cases, exceed the term assigned to our own race, say seventy or eighty years. When the trees of an orchard, which has been treated with proper care, decay from age, little can be done to renovate them. The better course is, to watch against this event in anticipation, and plant out new orchards in other spots, and thus secure a succession of thrifty bearers.

Of the various insects which infest the apple

tree, (for almost every tree has several enemies of this description,) the most conspicuous in this neighborhood are the borer, the canker-worm, and the caterpillar. The first of these is described by Dr. Harris in his Report, p. 89. It attacks the tree at the surface of the ground, or a very little way below, and mines through the trunk, pursuing a slanting course upward. If the tree is of any considerable size, the insect employs several years in reaching the opposite side of the tree. The remedy most commonly suggested is to take him out with a gouge. This, however, is an ineffectual, or rather over-effectual remedy, since it not only destroys the insect, but goes far to ruin the tree. The enemy should be arrested, if possible, at the surface of the bark, or stopped short before reaching it. I was informed by the late S. G. Perkins, that these objects could be effected by examining the trees twice in the year, namely, in the middle of the months of June and October, destroying the insect if found near the bark, and pouring in a small quantity of unleached ashes around the foot of the tree. Some may be deterred from this operation, from a mistaken idea of the time which it might require. In this case, however,

as in that of many other minute gardening operations, the requisite time is much less than is generally supposed. Mr. Perkins told me that he examined three hundred quince trees in search of the borer, (which is precisely the same insect as the apple borer,) in a single morning; and the late Mr. Prince states that, in tilled land, one man could take out the borers from one hundred apple trees in the course of a day. It has been observed that this insect is much less common in clayey than loamy orchards, probably on account of the greater difficulty which he finds in working through the stiff clay.*

The most dreaded enemy, however, of our apple orchards is the canker-worm. Wherever he attacks in great force, he strips the tree entirely of its leaves, and where his ravages are continued, as they often are, two or three years in succession, may kill the tree itself. He likewise attacks our most magnificent forest tree, the American elm, and many noble specimens of this plant in our vicinity have fallen victims to this enemy within the last ten years. Happily, its ravages are periodical and not constant, and it

* For an interesting letter on the subject of the borer, see note A. at the end.

appears to travel very slowly from one district to another. Like the borer, it seems somewhat averse to a clayey soil. No remedy against this destructive insect has yet been found which can be pronounced at once effectual and economical. The great object, as every one knows, is to prevent the insect, in the autumn or early spring, from ascending the tree, where it goes up to lay its eggs. The insect has a strong propensity to climb, and can walk easily over any surface, unless it be either viscid, (sticky,) or shifting, like loose sand. It will crawl, for instance, over a chestnut bur, as easily as over a chip.

To stop its progress, lead gutters round the trunk of the tree filled with oil have been recommended with great confidence. These, however, if made of the usual size of an inch in width are quite ineffectual. The insects which first climb are caught in the oil, and serve as a bridge over which their followers can walk dryshod. Gutters, to be effectual, should be over two inches in width, and this would greatly increase the expense, and if applied to any large number of trees, the amount would be a serious matter. Besides, in any case the oil is almost certain to be driven out by wind or rain against the bark

of the tree, and the tree in consequence is seriously injured. Tarring on the bark itself is still more objectionable. If the tar is applied on strips of canvas, which are fastened round the body of the tree, there is still danger that the tar may run down the bark. Besides, the tar is soon hardened by the sun or chilled by rain, and the insect then passes over it with ease.

The best expedient with which I am acquainted is that employed in Europe, against an insect resembling our canker-worm, though apparently not so notorious. It is mentioned by Köllar, and called by him a wooden boot, I suppose for no other reason than because it is placed round the foot of the tree. It is, in fact, a box without top or bottom, and with sides of about a foot high, furnished with a border at the top on the outside, like the eaves of a house. The tar is put on under the border, and being thus protected from the sun and the weather, remains liquid for a long time. Care must still be taken to renew it occasionally. Some insects may rise between the boot and the tree, but these will be few, if any, as the propensity of these insects is to climb over the obstacles which they find in their path, and not to mine beneath them, and

most of them rise from the ground at a little distance from the very trunk of the tree. For a tree not exceeding twelve inches in diameter, a boot will cost not exceeding sixteen or eighteen cents, and if taken off and replaced at the proper seasons these boots will last for years.

The history of the insect may be briefly given as follows. The male, which is a small miller, and the female, a grub without wings, climb the tree in the autumn, or early in the spring, and the female deposits her eggs on the branches of the tree. These eggs are hatched in the spring, about the time of the appearance of the young foliage. The young worm issues forth and preys on the leaves for about four weeks, turning this short period to (for himself) the very best account. He then descends into the ground, and about the first of July the insect has disappeared for the summer, to issue forth again in his perfect state, after the first hard frost, or from that period till early spring. Dr. Harris states, that in mild winters he has seen them issue forth in every month from October till March. A mode of destroying the chrysalis while in the ground, by wholesale, has been suggested by Dr. Harris, and that is to turn pigs into the orchard, who

can detect the insect by their remarkably keen scent, and will devour him greedily. The trees, if young, must be protected from the swine by some cheap barrier. This expedient seems likely to be quite an effective, and not expensive one, and well deserves a careful trial. The benefit in other ways to the soil, by the stirring and nourishment which it must thus receive, cannot be inconsiderable.*

The caterpillar is an insect less voracious, perhaps, than the canker-worm, and at any rate far more within our control. So completely, indeed, is this the case, that a caterpillar's web in an apple tree is a sure signal of negligence in the proprietor. Various ways of destroying these insects are in use. The first is to destroy the eggs in the autumn and winter. The eggs of this insect are laid round the small branches in masses of about the size of a date stone, and covered with a shining varnish, which protects them from the cold, but at the same time renders them more conspicuous. No one who has once seen these curious collections can ever mistake them. In the spring the heat of the sun at once melts the varnish, and hatches the egg, and the

* See note B. at the end.

caterpillars begin to spin their webs, and to go forth and prey on the leaves. They always, however, keep up a connection with their nests, and return to them at night, and do not sally forth again till the dew is dried in the morning. There are various ways of checking their ravages. The little collections of eggs may be picked off in autumn and winter. On young trees this method is often very effectual, as many of these little packages may be detected by their glittering surface. Two dozen of them have been collected in the course of an hour, and this is by far the neatest and most agreeable mode of getting rid of the evil. But as many eggs may escape notice, and many more be out of reach, it will be necessary to examine the tree after the insects have formed their nests in the spring. As the insects are always at home early in the morning, the nests may be pulled off and crushed by the hand. This is a disagreeable operation even to the sturdiest farmer, but where the nests can be reached it is thoroughly effectual. Where the nests are out of the reach of the farmer's hand, they may be destroyed by a circular brush, of about an inch in diameter, with a long handle, and this, if applied every few days, will fully answer the purpose.

When the fruit of the tree is ripened, no other attention is necessary than to gather it with due care. The apple bears its fruit on spurs, which continue to bear several years in succession, and if these spurs are injured by careless or hasty gathering, the fruit of following years is lost.

It will be perceived that I have left untouched many important points in relation to the culture of apple trees. I have said nothing, for instance, in regard to those varieties of apple, which are best raised in our orchards. There are so many of these varieties that the bare enumeration of them, without one word of comment, would occupy several pages. I shall merely remark that the three kinds most generally raised in this vicinity, are the Rhode Island Greening, the Baldwin, and the Roxbury Russet, all natives of New England, and of well-established reputation. The finest of all apples, in general estimation, the Newark Pippin, cannot be cultivated to any advantage in our climate, and requires a more southern atmosphere, growing to great size and beauty in Virginia. I pass over also, entirely, the subject of grafting, and have said scarcely any thing on that of manuring. But, notwithstanding these omissions, and many

others doubtless of equal importance, I have extended this report much beyond my expectations. It was no part of my design to write a complete treatise, but merely to offer a few hints on those topics, which have suggested themselves most prominently to my own mind. Respecting many of these there may be differences of opinion. One fact, however, should be borne in mind, that of two proposed ways of proceeding in agriculture, both may be good, though not equally so. Happily for us, agricultural operations are not like the delicate operations of surgery, which there is only one safe way of performing, and in which the slightest deviation may produce disastrous or fatal consequences. When we say, for instance, that the spring, on the whole, is the best period for setting out trees in our climate, or that young orchards should be kept in tillage, we are far from asserting that no orchards which may be otherwise managed can grow or thrive. But though there may be more than one safe way of proceeding, there is probably only one best way, and what that is may well be a subject of frequent and earnest, though, it is to be hoped, in all cases, of fair and good-humored controversy. When we consider the

adaptation of the apple tree to the climate of all the States lying north of the Carolinas, the variety of soils and situations in which it will flourish, and the many ways in which its fruit may be used as an agreeable and nourishing article of food, we may pronounce this tree to be of more importance to our country than all other fruit-trees united, and the beauty of a thrifty orchard in full bearing, striking as it is to the most careless observer, must be deemed by far the least of its recommendations.

NOTES.

NOTE A.

THE APPLE TREE BORER.

GARDINER, Me., Feb. 10, 1847.

DEAR SIR, — Having been for many years very much troubled with the borer in my apple trees, last spring I determined, if possible, to find out their origin, and I believe I succeeded. Allow me to give you an account of the transaction.

I sawed off a small tree, which was badly eaten by the borer. I then split into it so far, as to discover four borers, one of which was far more advanced in its state of existence than either of the others, and which, I supposed, might come out that season in another form. I carefully preserved the tree until the 10th day of August, when I saw that the insect, in the most advanced state, was dead. I then, for the first time, took it out from the tree to examine it very particularly, that I might know its like should I discover it alive. Its head, eyes, feelers, and body, were perfectly formed; its wings partly. Indeed, it was so far formed and perfect, that

I had an accurate idea of the bug it had been destined to form, had it not been molested. I then went out among my apple trees, for the purpose of finding its like. The third day I found the bug, and knew it to be the same at first sight. I brought it into the house, and put it with a smooth and fresh limb of an apple tree, under a glass. It readily fed on the bark. During the day, it was very dull, but at night, was exceedingly brisk and active. As soon as it was dark, it would commence piercing a row, about an inch in length, of very small holes through the bark, and then with its sharp teeth or cutters, which it seemed to use like a pair of shears, by putting one cutter in one hole and the other in the next, it did, apparently with great ease, cut the bark from one hole to another, and so continued, until it had cut each and every hole into the other. By this means, it made a perfect slit in and through the bark, the whole length of the row of holes, which, as I have before said, was about an inch in length. It would then make use of its tail as a pry, and with it raise up the bark so far as to enable it to deposit its egg under it. In this way it continued to deposit from two to four eggs every night, until the middle of September. My examination of its operations was by the light of a lamp, which did not disturb it at all. After I had seen it deposit its eggs, as I supposed, I examined, in the daytime, to see if I could find them. I had no difficulty in finding them; they were about the size of a pin-head, but considerably flattened. After noticing the marks on the limb under the glass, I could with ease discover all those marks that were made on my trees, the last season, by the bug; and by lifting up the bark, did, in every instance, find the egg. I could also find

the places where the bug had fed on the bark of the tree, as it did on the limb under the glass. From what I have seen of the borer, I have no doubt that it remains in the worm state, three years at least, and perhaps much longer, in the tree. I presume the egg is not hatched until the next season after it is deposited. During the last year the borer remains in the tree, it bores up through the wood, leaving nothing but a slight covering of bark over the hole, and remains there while it is passing from the worm to the bug state. When transformed, it readily removes the bark and comes out, leaving a round and smooth hole behind, as large, and in some cases larger, than the largest nail-gimlet. It has by many been supposed, that this hole is the one through which the worm enters the tree; but I am certain, from observation, it is not so; it is the hole through which the bug makes his exit from the tree, while the hole below is the one where the egg was deposited, and through which the borings and other matters are cast out.

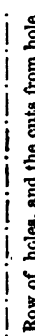
The bug is seven eighths of an inch in length, white body and head, with three brown stripes from the top of the head to the extremity of the shell that covers his wings, leaving two white stripes between. The eyes of the insect are very black. I still have the bug in my possession, though his legs have fallen off and he is otherwise somewhat mutilated.

Thinking that the above facts, communicated to those whose leisure and attention are directed to such subjects, may be of use, in suggesting a remedy for the evil, has induced me to communicate the facts to you. As to every thing above related *as facts*, you may rely upon them as *such*.

I cannot have the least doubt that I have discovered the origin of this troublesome insect, the borer.

If a thick coat of lime be kept on the tree from the ground two feet up, from the time the bug comes out, which may be the first of July, though I think not until August, and be kept on until October, I think it will prevent the bug from troubling the trees. I washed some of mine last year in this way, and in no instance could I discover any trace of the bug on them. This wash will not kill those borers that are already in the tree, but I think it will prevent any more eggs being deposited so long as the trees are thoroughly coated with lime. This wash assists, also, in discovering the borers which have just commenced their existence; for you will find the lime to be stained with a reddish color over the spot where the young borer lies, long before any borings are cast out.

That you may have a perfect idea of the operation of the bug, I will here give you a specimen of the row of holes he bores, and of the cuts or slits from one hole to the other, thus:—



Row of holes, and the cuts from hole to hole.

This row of holes runs with the grain of the bark, or up and down on the tree, and always on a smooth spot on the bark, so far as my observation has gone. One egg only is deposited in one of these slits of an inch long. A row of holes is made for every egg.

Respectfully yours,

WM. B. GRANT.

NOTE B.

ON THE CANKER-WORM.

This insect is so hardy, persevering, and destructive, that I add a few remarks to those contained in the text, as to the best means of checking his progress. The expedient most commonly adopted is placing a broad belt of canvas or coarse paper round the stem of the tree, and covering it with tar. But as already stated, this tar may be chilled by rain, congealed by cold, dried by the sun, or lastly, absolutely bridged over by the insects who are first entangled in it. In either case it is no longer impassable, and fails to effect the desired object. To avoid this failure, it is necessary that the farmer should keep on the watch, and repeat the tarring, every day through the winter, when he has reason to believe the grubs will rise. The rosin oil sold for this purpose, which is about the consistency of common West India molasses is about fifty per cent. more costly than the tar, but I think far better, inasmuch as it keeps fluid at a much lower temperature. It now costs between six dollars and seven dollars per barrel of

twenty-eight gallons. The cost of this careful and repeated tarring, cannot I think be estimated at less (estimating the labor at a fair price) than thirty cents per tree of one foot in diameter, or thirty dollars on an orchard of one hundred trees of that average size for the season.

2. A conical mound of sand heaped round the stem of the tree as steep as it will lie, is, except in one case, absolutely impassable to the grubs. I have tried it repeatedly. They attempt to climb most perseveringly, but perpetually slide back, and at last lie down exhausted close to each other in a ring round the foot of the mound. Here they may be picked up and destroyed much faster than the same number of berries could be gathered. The cost of so fortifying an orchard of the above description, would not probably be more than ten dollars, or ten cents a tree, including the adding of a surface of dry sand when necessary.

This I have said is a complete remedy except in one case, and this is when the sand is thoroughly wet with rain, which renders it solid and easily passable. If such a rain is succeeded by mild weather the insects will not fail to improve the opportunity. Still, as we have often in the autumn a long period without rain (such has been the case in the present year, 1855) the trees can be thoroughly protected for weeks together, and very great numbers of the insects gathered up and destroyed with very little labor.

3. Another expedient is that of gutters of which something is said in the text. A gutter *of sufficient size* is a very great protection, if filled simply with water. The insects cannot swim, and after floating and struggling a short time are drowned, and then sink to the bottom. But the cheapest

gutters of this description, (which should be not less than four inches broad at the top,) cannot be procured at less than two shillings per running foot, or one dollar for a tree of one foot in diameter. This in an orchard of one hundred trees of good size, would amount to as many dollars. Besides if the water should be congealed, and a sudden spell of mild weather set the insects in motion, they can walk easily over the ice.

Other liquids less apt to congeal might be employed, such as oil of vitriol, or winter strained oil, but these, to say nothing of other objections, would much increase the expense. I have stated these facts in order to throw all the light I could on this interesting subject. They will be I think of use, even if we are obliged to fall back on the conclusion, that there is no remedy for this dreaded insect, at once complete and economical. In my neighborhood (Cambridge), he seems to be gradually migrating westerly. A few years since Old Cambridge seemed to be one of the chief seats of his ravages. They are now I believe somewhat less there than formerly, and the insect is appearing in great force on the borders of Watertown.

ESSAY

ON THE

CLIMATE OF NEW ENGLAND.

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It has been a general, and is perhaps still a prevailing impression among the inhabitants of New England, that our climate is much warmer now than two hundred years since. This position has been distinctly assumed by some of our best historians and naturalists, and many ingenious reasons have been given for the change. The explanation which seems to have met with most favor is that which ascribes the alleged softening of the winter's cold to the clearing away of large tracts of forest trees. It is believed, however, that the position itself may be fairly called in question, and that philosophers, by a mistake not unprecedented in the observers

of natural phenomena, have employed themselves much more diligently in accounting for a striking phenomenon which they have assumed to exist, than in collecting precise evidence to determine the fact of such existence. Much less of this evidence exists than could be wished, or than is now customary to collect and preserve on all scientific topics. The science of meteorology, or the observance of the weather, in the largest sense of the words, is even now in its infancy, and the instruments necessary to carrying on such observations with precision, are of very modern date. The thermometer was little used in this country, or even in older countries, previous to the last century, and all instruments of this kind employed in the early part of that century were very imperfect. Till after the year 1750, the only thermometer used in New England was Hawksbee's. Not a single specimen of this instrument is now known to exist. There is good reason, however, to believe that it was much less accurate than any thermometer now employed. During more than half a century, however, that of Fahrenheit has been in general use throughout New England at least, and we possess an exact register of observations

made with it during more than forty years on one spot, and by one individual, the venerable Dr. Holyoke, of Salem. A particular account of this register may be found in a valuable paper by the late Dr. E. Hale, in the Transactions of the American Academy, Vol. 1, New Series. The temperature of each day was four times noted at the same hours during the whole period. As a comparative statement, therefore, of the earlier and later portions of that period, it is of singular value. No conclusion can be drawn from it, as Dr. Hale has clearly shown, favoring, in the least, the popular impression respecting the amelioration of our climate. On the contrary, it seems evident from Dr. Hale's Essay, that from the year 1786 to the year 1829, the climate of the vicinity of Boston has continued essentially the same. It should be recollected that in no previous period, of equal length, were the changes greater or more extensive in the face of our country, as well as the condition of its inhabitants, or greater inroads made on our ancient forests.

There is another interesting as well as important mode of procuring light upon this question of change of climate, namely, by observing for

years in succession the periodical changes in the vegetation of our trees and shrubs. It has been observed by the late Mr. Lowell, that "had there been precise records kept of the date of flowering of trees in certain specific locations from the first settlement of the country, very much would have been done for the decision of the whole question as to change of climate." The venerable pear tree of Governor Endicott, had its times of flowering been punctually recorded by its seven successive generations of proprietors, might have put all dispute at rest. We possess no ancient registers of this description kept with the exactness which Mr. Lowell recommended, and which he actually put in practice at Roxbury through a period of thirty-two years. But we have a similar record kept, on the whole, with great regularity, by the late Rev. Thomas Smith, of Portland, Maine. His diary of the seasons extends, with a few unimportant exceptions, from 1722 to 1786, thus reaching back to a century and a quarter ago. It appears from several observations, made by him between the years 1751 and 1773, that the average time of the blossoming of the cherry at Portland, during that period, was between the 12th and 13th of

May. Mr. Lowell states that the average at Roxbury, for several years since the commencement of this century, was May 8th; and from observations made by General Dearborn in the same city, from 1835 to 1847, inclusive, it appears that this average should be fixed precisely at the same date within a fraction of a day. When we consider that Portland lies north of Boston by more than one degree, these facts, to which many of a similar purport might be added, would seem to form evidence as conclusive as, under the circumstances, could reasonably be expected, against any supposition of a perceptible change in our climate since the settlement of our country. Besides, had such a change occurred to any material extent, we should find some proofs of its existence in what are called our half-hardy plants, that is, plants which are a little, and only a little, too tender to be exposed without protection throughout the year. Could it be shown, for example, that that most beautiful evergreen, the English Ivy, which has been cultivated by our florists for more than half a century, could now endure our winters better than formerly, this would furnish a proof of the

softening of our climate which it would be difficult to set aside. But we shall search in vain for any instance of this description. Among the many species of trees and shrubs which have been cultivated in our gardens for two or three generations, it may be safely asserted that there is not one which appears to have increased in hardiness. But it may be asked in what way we are to account for the impression that our climate has been growing warmer since the settlement of our country, since neither the existence nor the strength of the impression can in any degree be gainsaid. A sufficient answer has been given by Dr. Hale, namely, that extraordinary seasons are remembered when the intermediate years which are not marked by any unusual prevalence of heat or cold, are forgotten. As strong instances in confirmation of Dr. Hale's remark, we need only call to mind the repeated references which we find in our annals, and which many of us recollect in the conversation of our predecessors of the last generation, to the long and dreary winter of 1779–80, to which Virgil's highly ornamented description of Scythian cold might be applied with prosaic exactness. Those

of us who have passed the middle age, retain an equally distinct recollection of the cold summer of 1816. Both these extraordinary seasons dwelt tenaciously and distinctly in the memory of many who could give no other account, however general, of most other summers and winters of their time. It is not to be doubted that the severe winter which occurred a few years since, when a channel was hewn through the solid ice in Boston harbor, in order to enable the steam vessel to proceed on her regular voyage, will be often appealed to by writers of the next generation as positive proof of the extreme rigor of our winters at the present day.

Impressions of this description are particularly vivid in our younger days. We all can recollect those made upon us by such striking natural phenomena as occurred just within our recollection, and more especially by those of our early winters. When we recall the mountainous snow-drifts, huge icicles, and nipping blasts of those periods, we can hardly realize that any winters of our later days are both equally severe and equally magnificent; and yet, all the precise evidence which we possess compels us so to admit.

It may be further observed, that the severe winters of the last century have been recollected the more vividly, because they were more severely felt than any winter of the same severity would now be. Our people are better clothed, our dwellings better fortified against cold, and what is of still more moment, our roads are far more quickly rendered passable after heavy storms. A mass of snow which sixty years since might have rendered travelling in our thinly peopled country all but impossible for weeks together, is now cleared away or beaten down in a very few days.

A single extract from Smith's Diary, (the work above referred to,) will show that former generations had their mild as well as their severe winters. Under date of March 7, 1775, he remarks, that the frost seemed out of the ground in the streets of Falmouth, (now Portland,) and this he calls a wonderful winter, and so it would now be considered. It was not, however, unexampled, for Mount, in his relation of the affairs of Plymouth, as quoted in Prince's Chronology, says under the same date, in the year 1621: "We begin to sow our garden seeds." Had we fuller

records on this subject, many more such instances might be brought to light.*

But unfortunately such observers as Smith and Holyoke, have been at all times rare, though there is every reason to hope, that they will be much more numerous in the present condition of the natural sciences. It may be safely asserted, however, that this idea of the gradual softening of our winters finds less and less support in proportion as we descend from general impressions to precise statistics. This is not the only alteration supposed to have occurred in our New England climate. It is a common impression, that our summer droughts are more frequent, and of longer continuance than formerly. If we could believe that there existed such a tendency in our climate, it would certainly be a most unwelcome conclusion. But the fact may be, not that these

* Macgregor, in his elaborate work on the Progress of America, Vol. 2, p. 42, observes, "That the Baron La Hontan, is recorded to have left Quebec, in 1690, on the 20th of November. He adds that this is as late as any vessel can or will leave that port at the present. Potrincourt and Champlain, on a Sunday, early in January, 1607, sailed in a boat six miles up to Port Royal, (Annapolis, Nova Scotia,) to visit a field of winter wheat, dined in the sunshine, enjoyed music in the open air, etc. No winter since has been milder."

droughts are more severe than formerly, but that their effects have become of more consequence, and have been perceived in more ways by our present far more numerous and wide spread population. To say nothing of these effects as exhibited on a wide extent of cultivated land, they are rendered still more striking in the lowering of the streams which move our factories, and still more of the great rivers through which so much of our vast internal commerce is carried on. But, that droughts are in truth, more frequent and severe in any part of our country, at the present day, than a century ago, is a proposition for which we find no countenance in any statistics which have come down to us. Smith's Diary is, on this point, an important, if not unique document. Though it seems to stand alone, its testimony is as frequent and precise as could be desired in any reason, or as the case could well admit. Years are repeatedly noticed at short intervals, as marked by a want of seasonable rains, in language, which, though of necessity less precise than a modern register of temperature, is yet altogether distinct and unequivocal. No one can read the Diary attentively without a full conviction that long and severe

droughts were a hundred years since, as now, the great trial of the patience and confidence of the New England farmer. Thus, we find such dry spells noticed as occurring in the following years, between 1743 and 1762, inclusive, a period of just twenty years, 1743, 1746, 1747, 1748, 1749, 1752, 1754, 1757, 1761, 1762, being ten years out of twenty.

As we have derived the greater portion of our agricultural knowledge from English writers, and almost all our cultivated plants from English gardeners, we can scarce avoid comparing at every step, our own climate with that of England, and on the slightest acquaintance with the subject, are struck with the great contrasts which exist between them. These are generally known, and may be stated briefly as follows: —

1. Much more rain falls, annually, in New England than in most parts of Great Britain,*

* I say in most parts of England. We are told in a Prize Essay on the English climate, (published in the Journal of the Royal Agricultural Society, 1850,) that in some of the western counties, the mountainous district of Cumberland, for instance, fifty, a hundred, or even a hundred and twenty, inches of rain sometimes fall in the course of the year. As a general rule, nearly twice as much rain falls on the south-west part England as in the neighborhood of London.

though the impression of common observers is probably the reverse. This difference may be more precisely understood from the following comparison of the fall of rain in twelve months at Chiswick, near London, taken from the registers of the Horticultural Society, and at Cambridge, Massachusetts, as stated from the American Almanac. I have selected, for the first statement, the year 1836, which seems to have been an uncommonly rainy year in England, and for the second, the twelve months from May, 1847, to May, 1848, merely changing the order of the months. Rain in inches and decimals.

	Chiswick, Eng.	Cambridge, Mass.
January,	2.01	2.88
February,	1.61	4.
March,	3.30	2.5
April,	2.88	1.2
May,	1.01	1.935
June,	1.66	5.491
July,	1.78	2.527
August,	1.97	5.215
September,	3.81	6.536
October,	3.62	1.444
November,	3.60	4.940
December,	1.48	4.370
	28.73	43.049

Yet nothing is more common than the remark that our climate is a drier and brighter one than that of England, and this is perfectly true. Their rains fall in moderate and drizzling showers, while ours are more violent, and are followed by fair and cloudless days. To this abundance of rain, and the great rarity of the blazing days which we often experience during our summers, for weeks together, is England indebted for the deep emerald green of her verdure, which we should in vain strive to imitate. In return, our bright summer suns give us a striking advantage over England in the raising of fruit. The apple, pear, peach, cherry, and plum can be raised in the climate of New England, as far north as Boston, on standard trees. Artificial modes of training are, with very few exceptions, not considered as worth employing, while in a large portion of Great Britain, there is not one of those trees except the apple, which does not require, or at least will not amply repay such artificial facilities. If Duhamel is right in his unqualified assertion, that fruit raised on standard trees is decidedly better than the same fruit raised in any other way, and his authority on the subject of fruit-trees is of the highest

order, the fruit of this country must surpass that of England in flavor as well as in abundance. Such seems to be the fact, so far as specimens of the fruits of the two countries have been compared, (though it must be admitted that such comparisons have not been very numerous or thorough,) and such is certainly a probable inference, if we admit the position, to say the least a plausible one, that the juices of all vegetable products derive their highest flavor from the rays of the sun.

2. The temperature of the winter in every part of England is unquestionably much higher than in Massachusetts. With some very rare exceptions, i. e. — about once in a generation, the zero of Fahrenheit may be considered as the minimum of the thermometer at London. In the year 1830, which seems to have been considered at that place as an average year, the mean temperature of the following months was: —

January, . .	31.75	February, .	36.6
March,. . .	48.33	December, .	35.49

The average temperature of the same months for forty-three years at Salem, Massachusetts, deduced by Dr. Hale from Dr. Holyoke's Obser-

vations, (Transactions American Academy, Vol. 1, New Series,) was as follows:—

January, . .	25.59	February, .	27.75
March, . . .	35.38	December, . .	30.29

Thus we perceive that near London, the temperature of the coldest month of the year is barely below the freezing point. Accordingly, we learn that in England proper, the ground is often sufficiently open for ploughing during the whole year, an operation very rarely practicable in the vicinity of Boston during any portion of the months of January or February. As the year advances this difference of temperature in favor of England disappears, and in the month of May the average heat of the weather in the environs of London and of Boston, is nearly the same, or about 56° Fahrenheit. In the summer months the excess of heat is on the side of New England, and that to a higher degree than may be generally supposed. Thus, in the summer of the year 1827, which I have selected as an unusually warm one in England, the average height of the thermometer at Chiswick was in June, 61.7, July, 67.7, August, 63.3, while, according to Dr. Hale, the average temperature of these

months at Salem for forty-three years was, by Dr. Holyoke's Observations, June, 67.19, July, 72.49, August, 70.53. In September the excess of heat continued to be on the side of our own climate, and the thermometer generally stands on an average about 5° higher with us than at London, and in October the temperature of the environs of Boston and London is very nearly on a level, or at about 52° of Fahrenheit. In November the balance again inclines in favor of London, the average temperature there being about 43°, and that of our own November about 40°.

Thus it would seem that our autumnal temperature approximates much more nearly to that of England, than our vernal, since at the autumnal equinox, our temperature is probably a little the higher of the two, while the average heat of the month of March, at Salem, is about 35°, and that of London may be safely estimated as between ten and twelve degrees higher. From the greater intenseness of our summer's heat and winter's cold, the earth, and consequently the atmosphere, recovers more slowly — so to speak — both from the one and the other, than in England. From this excess of heat in summer, and

deficiency of it in winter in our climate over that of London, it may naturally be conjectured that the one is nearly a counterpoise to the other, and that the average heat of the whole year at London and Boston, and in their respective vicinities, is not very different. Such seems to be the fact, as nearly as such a fact can be ascertained; the average heat of the year at London being estimated at about 49° Fahrenheit, and that of Boston very nearly the same. It results from the greater coldness of our winters, that our spring begins, on an average, three or four weeks later than in the neighborhood of London, and those who quit England in March or April, and arrive in Boston after a passage of a month, sometimes find the vegetation in the one country, precisely at the point where they left it in the other. So thoroughly, as already stated, is the ground cooled by our severe frosts, that it requires the action of the sun for several weeks after the equinox, to call our trees into full life. But such is the heat of our May and June, that vegetation, when once fairly started, advances with rapid strides, and by the middle of June, our growing season is probably on a level with that of the south of England. We find that

many of our fruit-trees which blossom, generally speaking, two or three weeks later than those of the same description near London or Paris, ripen their fruit at about the same time. Thus, from observations made for several years near Cambridge, in England, it appears that cherry trees which flowered, on an average, April 14th, ripened their fruit June 27th — by no means an early period with us. All seasons, early and late, says the late Mr. Lowell, are nearly on a level, on the 10th of June. "It is familiar to every one, that in Russia and Canada, the seasons are as forward as ours, by the beginning of July." Midsummer probably occurs at precisely the same time throughout the whole of the northern temperate zone.

3. The most striking circumstances, however, which distinguish the climate of every part of our country from that of Great Britain, are our fierce extremes and the sudden and extensive changes of our temperature. The zero of Fahrenheit has been stated as the minimum of the thermometer at and near London. Putting out of the question, however, extraordinary seasons, this minimum may be fairly placed ten degrees higher. With the same qualification, the great-

est degree of cold in the vicinity of Boston, may be fixed at about ten degrees below zero; being twenty degrees lower than the London minimum. This degree of cold is reached or approached in our vicinity almost every year.

We very rarely pass a winter which is not distinguished by a few days of extreme cold, by which is meant, days on which the mercury sinks below zero. The number of these days varies, rarely exceeding five or six, and averaging three in a season, and they often occur in immediate succession. Few as they are, they are amply sufficient to test the hardiness of our trees and shrubs, for it is not likely that any plant that could endure two or three days of such weather, would sink under a longer continuance of it. This occasional degree of cold alone would be sufficient to deprive us of many of the shrubs which ornament the gardens of every part of England. But our winters would probably be far less dangerous to vegetable life if our climate, severe as it is, were more uniform. On the contrary, it deserves any other title. The average range of our thermometer in the three winter months of December, January, and February, is not less than sixty degrees, while that

of a London winter is less than forty, and the change in the course of one of our winter days, sometimes amounts to thirty degrees. The difference between the greatest degree of heat and cold in our spring months, (March, April, and May,) the most critical of the whole year, so far as vegetation is concerned, is not less, on an average, than seventy-four degrees. When these facts are considered, it will seem much more surprising that the list of exotics which habitually endure our winters should be so large as it is, than that we should be compelled to exclude from this list so many of the ornamental plants of Europe.

Our extremes of heat are equally striking as those of cold. They occur with equal suddenness, and with more frequency. The number of days in each year in which our thermometer rises above ninety degrees, a heat all but unknown in England, is not less on an average, than ten annually. These occurring as they do near midsummer, produce much less effect of a permanent kind upon vegetation, than days of extreme cold, and are of little moment to the farmer or gardener, except as they serve to increase our summer drought.

No country, however, is entirely exempted from those extraordinary visitations of severe and changeable seasons, which overleap the usual boundaries of heat and cold, and occurring as they do, once, perhaps, in a score of years, destroy in many instances the growth of a generation. Such a season occurred in England, in the winter of 1837, which, for the greatness and suddenness of its changes, might fairly be denominated a New England winter. This resemblance must give additional interest to any full and accurate account of its effects on the vegetable kingdom, and such an account has been given by Professor Lindley, in the London Horticultural Transactions, Vol. 2, New Series.

Whether any winter as extraordinary, all things considered, has occurred in New England, we have no sufficient data for ascertaining. The cold summer of 1816, was, however, an instance of equally rare and extraordinary deviation from the usual course of our seasons, and if not unexampled, has certainly been since unparalleled. It is probable that every period of twenty or thirty years has exhibited, with a very few if any exceptions, all the varieties of which our seasons are susceptible. Much of this able paper of

Professor Lindley, is, as might be expected, principally interesting to English gardeners, but there are some deductions which may be drawn from it of a more general character, and applicable to our own, or any other climate. Professor Lindley's statements go far to overthrow the position of Mr. Knight, that the English winters have softened during the last century. The thermometer is stated by Lindley to have sunk in many places of the counties of Kent and Middlesex from three to thirteen degrees below zero, and at Chiswick, it stood at 4½°. Had Mr. Knight lived to that time, it can scarcely be doubted that he would have seen reason for a great, if not entire change in his impressions. There is, I believe, no instance on record of a degree of cold materially greater in the southern part of England. This paper clearly shows, or rather strikingly illustrates the fact, that extremes of temperature, *especially those which occur suddenly and last but a little while*, are often confined within very narrow local boundaries, and that the heat or cold of places within a very short distance of each other, may vary exceedingly at any given moment. The temperature of any spot is materially affected by large objects, natu-

ral or artificial, within the immediate vicinity, and so great effects are produced by the radiation of heat on the one hand, and by shelter on the other, that we often find thermometers in different parts of the same city or village, or even of the same garden, differing several degrees. Mr. Daniels states (Horticultural Transactions) that he has known a difference of thirty degrees of temperature between the top of a hill of moderate height, and the valley at the foot. Not the least interesting of the facts observed this winter, says Lindley, was this: that in those places where the cold was very severe, the more plants were exposed, the less they suffered, while the more they were sheltered without being fully protected, the more extensively they were injured. Of this, he proceeds to give several striking instances. Had he experienced a few of our changeable winters, he would scarcely have thought the fact extraordinary. It seems to be a settled principle that all tender plants which can bear our winter weather at all, are safer in a northern exposure than any other; and that the winter's sun is, with respect to all those plants which are called half-hardy, far more dangerous than the winter frost.

It is impossible to read Lindley's Essay, without being convinced that much of the devastation which it commemorates, was owing, not to the actual severity of the cold alone, but to the fact that this cold was preceded by an uncommonly warm period. The cold was certainly such as is rare in any part of England, but in all probability, as Lindley himself intimates, far from unprecedented. But the preceding weather had kept the fluids of the trees in activity, and the sudden check was sufficient to test their powers of endurance to the utmost. Lindley himself does not seem to adopt this conclusion, or, at least, to state it distinctly, but rather to consider the actual degree of cold as the prime and sufficient agent. Doubtless, there is a limit in every exotic to its power of enduring cold, however prepared by the previous state of the weather. But when we find that our hardy ash (*Fraxinus Americana*) was severely injured by a temperature of four and one half degrees below zero; while with us it seldom passes a winter without experiencing this degree of cold, and is often called to meet one much more severe, it seems impossible to deny that no injury would have occurred, had not the tree been strongly

and unnaturally excited by the previous warm weather.

On the subject of acclimating plants, that is of rendering a tender species hardy by repeated raisings from the seed, Professor Lindley's language is very decided on the negative side. Acclimating, says he, in the strict sense of the word, seems to be a chimera, and quotes the bean as a plant which has been raised from the seed in cold climates for centuries, and is still tender. An individual plant, however, may unquestionably be brought by judicious protection to endure a climate very different from its own. I have seen two beautiful silver firs flourishing near Savannah, which for some years were regularly screened by close boarding from the summer's sun, till at length protection became unnecessary.* This paper of Lindley's is one, which, for the precision and fulness of its statements, as well as the fairness of its reasoning, may serve as a model for records of Horticultural Observations. From many obvious causes, meteorological investigations can serve only to mislead, unless made extensively, repeatedly, and accurately. Thermometers, in this country at

* See note at the end of this Essay.

least, are seldom insulated with any care from surrounding objects, or protected from the direct or reflected rays of the sun; and it is only by comparing the statements of many careful observers, that we can arrive even at an approximation to an accurate idea of the temperature of a large district at any given time. Moreover, the observations of the meteorologist must, like those of the astronomer, be continued for ages, before we can hope to discover, to any considerable degree, the mysterious laws which regulate the distribution of heat and cold. To the practical farmer or gardener, indeed, it is of much less moment to discover the causes of the leading peculiarities of our climate than to obviate their effects. One or two suggestions to that effect will close this Essay. So far as respects heat and cold, a farmer has but little power over the fierce and sudden extremes of our season, beyond the limits of his frames and greenhouses. He can only protect a few favorite shrubs by covering, and choose a proper exposure for his fruit-trees.

But there is one striking feature in our climate, the long spells of dry weather, to which allusion has already been made, and the effects of which,

no exertions should be spared to alleviate. One of the most obvious remedies would be irrigation. But very few of our farmers have the means at hand for watering their land upon any regular system, to say nothing of the high cost of the labor necessary to apply those means.

Another expedient, which has been little practised hitherto, but which seems fast coming into general use, is the breaking up of the soil to a great depth, more especially by subsoil ploughing. In countries where labor is cheaper, the same object is effected by the spade, which indeed not only divides the under soil, but brings it to the surface. But the expense of this course, which in Massachusetts would probably be not less than fifty dollars per acre, would be considered by many as an insuperable objection. Besides, if the under soil is brought to the surface, a heavy expense must be incurred in addition, in the manure necessary to enrich it. The same objections may be made to the enormous trench ploughs, used in England, but, it is believed, scarcely known here, which completely reverse the soil to the depth of a foot and a half, and thus place the cold and barren subsoil uppermost. The only subsoil ploughs used with us are those

which merely split and break up the hard pan beneath, and thus produce a bed of light earth of about sixteen to eighteen inches in depth. This can be effected in the stiffest soil by a subsoil plough, with four stout horses, or an equivalent force of oxen following in the wake of a common plough, and the cost will not exceed twelve or fourteen dollars per acre. When once done, it may be considered as permanent. Every one knows that the hardest ground, when fairly broken up, is loosened for many years, and nothing but the constant travel which takes place in the most frequented streets or roads can restore it to its former compactness for a long period. By this opening of the under soil, the roots of plants are enabled to shoot downward, and this they will infallibly do when the surface is parched by drought. Besides, every one knows that a heap of loose earth conducts the heat of the sun off much more slowly than a compact mass of hard soil, to say nothing of the superior power which it probably exerts in extracting from the atmosphere its hidden moisture. If we thus open a refuge to our plants from the fierce rays of the sun, we shall find that none, whether trees, shrubs, grain, or grass, will fail to shoot down their roots, as far as they find the way open.

The next expedient for alleviating the effects of our wearisome spells of dry summer weather is, mulching. This expedient can be practised to much less extent than that just mentioned, and must be a resort, rather of the gardener than the farmer. With crops of English grain, it is manifestly impossible, and for field culture, generally impracticable from its expense. But so far as a farmer is a raiser of trees, it may be of the greatest service. Young trees especially, are not only benefited, but often actually saved, by a cover of leaves or litter of moderate thickness placed round the foot to the distance of a few feet. The roots of the tree are thus effectually shielded, and enabled and invited to spread themselves in the soil near the surface, which is of course the richest. If we go into a forest or grove, and sweep away the bed of leaves which we find lying round the trunk of a tree, we shall generally find many of the roots actually lying on the top of the ground.

A third expedient, and perhaps the most effectual and useful for obviating the effects of drought, is the frequent stirring of the surface soil. This can never be done without essential benefit. It would be going quite too far to say that it com-

pletely supplies the want of rain, but it is certain, that in some way or other it produces effects which no one would suppose beforehand, and which no one who has ever attempted to test the point by experiment, will ever question. Whoever stirs a few feet of dry soil, will find that it soon changes color and gathers moisture from whatever source, or in whatever mode. Wherever this measure can be resorted to, which is of course only in places where the plough or hoe can be used, it will be found far more effectual than any other remedy which can be applied with the same amount of labor. The latest and most popular French writer on Horticulture points out the mulching and stirring of the soil as the two leading remedies against the droughts which visit all parts of the globe frequently, and our own country in a preëminent degree.

As no human power can change our climate, and as there seems no prospect of any amelioration of its severe winters or its parching droughts, it is an obvious dictate of common sense, to select such plants for cultivation, whether annual or perennial, as can best resist its fierce extremes. On this point, little or no information can now be given to New England cultivators. The ex-

perience of two centuries has rendered any precepts unnecessary, and our great agricultural staples are precisely those, which, if the choice were now to be made, a wise cultivator would select at the present day. Of these, the best adapted to our climate, as well as our wants, is Indian corn. A few bushels of this grain which had been stored away by the natives, and were found by the Pilgrims before they landed on Plymouth Rock, may be called the first-fruits of their new land of promise. Since then, the various merits of this most useful as well as beautiful plant have ever been most justly and wisely appreciated, and the twinkling maize field, as it has been elegantly called by Bryant, has always formed the most striking feature in our field cultivation. Another of our best native poets denominates this vegetable —

> The plumed maize with shapely blade,
> That stands like martial host arrayed.

And certainly no plant of the grain kind stands up more manfully under our fierce summer heats. It only begins to wilt when all our other crops have drooped, and the curling of its thick and glossy leaves, is a symptom of a drought of the

last degree of severity. For a century and a half, its grain was our chief bread corn, and though now less in use as sustenance directly for ourselves, it furnishes us with much of our food, as the best grain for fattening animals yet known. But we have only begun to appreciate the value of this plant in another particular, namely, as green fodder.

Its worth, in this respect, was first brought into notice by the late Colonel Pickering, who states that it will yield for this purpose more than ten tons of green food per acre. Still further information on the subject may be found in the valuable pamphlet on soiling, lately republished by President Quincy.* When our grass is actually burned up by the dry weather, in other words, in half our summers at least, this plant furnishes a complete substitute to our grazing animals who prefer it to any other food, and in all cases, whether the cattle are fed in the barn or the field, forms a valuable addition which well repays the labor bestowed in raising and

* President Quincy states, p. 5, that two square rods of land will afford an ample supply of green food per day for each head of cattle, without any additional food. He recommends sowing in drills at the rate of three bushels per acre.

reaping it. I cannot leave the subject of our New England climate without a word upon its favorable influence on the health of our domesticated animals. Our severe cold, which penetrates to our very firesides, has compelled us, from the beginning, to house those animals in the winter, while they, doubtless, suffer much in other countries where the winters are sufficiently mild to allow them to be exposed unsheltered without absolute cruelty, and yet not mild enough to enable them to bear such exposure comfortably. The practice, so general in England, for instance, of permitting cattle to remain out during the whole of the year, is justly censured by that eminent agriculturist, our late countryman, Dr. Colman, as a most slovenly and unthrifty one. In our dry summers, too, our sheep and neat cattle seem in a great degree exempt from many diseases which prevail in England, and are ascribed principally to the damp weather. We accordingly find that a race of cattle has grown up among us which, though a very moderate degree of attention has been paid to them on the whole, is highly distinguished by its valuable qualities in every essential particular; and although the importation

of valuable foreign animals should by no means be discouraged, it is far from certain that the best mode of improving our domestic cattle is not by careful selections from our own stock. Our New England climate, like every other climate on the globe, often calls forth complaint and criticism from those who live under it; but when we give it due credit for the great variety and importance of the vegetable productions, whether grain or fruit, which can be raised in the greater portion of the States of New England, and for its proverbial healthiness, as respects our farming stock, to say nothing of its far more important effects in invigorating our farming population, we shall probably allow that it abundantly compensates us, even in an agricultural point of view, for its violent changes, nipping winters, and parching droughts.

NOTE.

How far can we accelerate the ripening of any kind of annual production, by selecting for seed year after year such specimens as ripen soonest? Had we this power to a great degree it would certainly be a most important one, equivalent in its effects to a material change of climate. There is reason to believe, however, that it is restricted within very narrow limits. The question is a most interesting one, and well deserves to be tested by experiment. The only attempt to do so which has come to my knowledge, was made by the late Dr. Freeman of this city, and is thus described in a communication to the Trustees of the Massachusetts Society for promoting Agriculture, printed in the New England Farmer, August 12, 1840. First sent to Trustees Mass. Society, September 1, 1808.

"To ascertain whether the ripening of seeds can be forwarded, by sowing those which are the earliest ripe, I have made experiments, all of which have been successful on several different sorts. It will be sufficient to mention one only.

"In the year 1801, I planted the case-knife bean. The

pods first formed *which are commonly those nearest the root,* were reserved; and when about the quantity of a peck was fully ripe, they were gathered on the same day. The largest and fairest of seeds were planted the next year, and the first formed pods reserved as before. The same method has been pursued without any variation till the present year, by means of which, whilst the bean has not degenerated in quality, the ripening of the seeds has been forwarded twenty-six days as will appear by the following table.

	Planted.	Gathered.	Time between planting and gathering.
1801	May 20	Sep. 9	112 days.
1802	" 11	Aug. 21	102 "
1803	" 10	" 8	90 "
1804	" 8	" 4	88 "
1805	" 6	July 31	86 "

As in the second and following years I anticipated the time of planting the seeds (by which means fourteen days have been gained in addition to the twenty-six noted above) to determine what effect later planting would produce, by giving the seeds more advantage from the heat of summer, in the years 1804 and 1805, I put into the ground a quantity of seed about a week later than that which was first planted. The event which took place, is exhibited in the following table.

	Planted.	Gathered.	No. days.
1804	May 14	Aug. 8	86
1805	" 13	" 6	85

As very little time has been gained in the present and in the preceding year, I suppose I have now reached or nearly reached the *ne plus ultra.*"

AVERAGE MONTHLY TEMPERATURE, from Dr. HOLYOKE's Observations, at SALEM, Massachusetts, for 43 years, 1786–1828. (Memoirs of the American Academy, Vol. I, New Series, p. 213), and at CHISWICK, (near London,) England, in 1827 and 1830, (Hort. Transactions).

	SALEM, N. E.	CHISWICK.	
		1827.	1830.
January	25.59	36.5	31.75
February	27.75	34.3	36.06
March	35.38	45.9	48.33
April	46.02	51.0	50.72
May	56.84	57.6	56.58
June	67.19	61.7	57.05
July	72.49	67.7	64.02
August	70.53	63.3	60.18
September	62.96	59.5	55.14
October	51.34	53.5	51.77
November	39.96	44.8	44.68
December	30.29	45.4	35.49

Degrees and Decimals Fahrenheit.

ADDRESS

DELIVERED BEFORE

THE MASSACHUSETTS HORTICULTURAL SOCIETY,

AT THEIR

SIXTH ANNIVERSARY,

SEPTEMBER 17, 1834.

ADDRESS.

LADIES AND GENTLEMEN: — I have been requested by the Horticultural Society to offer you some remarks on the present interesting occasion. I am sensible of my inability to do justice to the subject, or to present to you any thing equal in merit to the elaborate, elegant, and valuable productions with which the public have been entertained on former anniversaries. But the respect which I owe to the wishes of the Society, and the deep interest which I feel in the great object of their efforts, have induced me to comply with their request, and I shall briefly notice some of the inducements which exist to the pursuit of Horticulture, more especially in our country.

This art may be recommended, in the first place, as an innocent and salutary amusement.

In bestowing upon it these titles, I have said very much in its favor. The topic of amusements has ever been a most perplexing and difficult one to the moral casuist. I suppose that no one would proscribe all relaxation. All admit that the most industrious individual must have his intervals either of recreation, or of idleness. But what amusements should be recommended, or tolerated, is a question on which there is far less unanimity of sentiment. In this country, there is, I believe, both a small amount and a smaller variety of relaxation, than in most others. We are, at least in New England, emphatically, a grave people. The simple manners and rigid morals which have descended to us from our puritan ancestors, our rigorous climate and stubborn soil, the equal distribution of property by descent and its necessary consequence, the small number of men of wealth and leisure, have rendered us, though certainly not a gloomy, yet a serious and practical community. Many amusements, which have prevailed in other countries, never have, and we trust never will take root in our land. Of those which are fashionable among us, there are several, which are denounced, either as deleterious, or at least peril-

ous to our morals, by a large and respectable portion of our population. This is not the occasion to inquire how far such sentiments are correct. It is more to my purpose to observe, that there is, I will not say, no ground, but no pretext, for such objections against the pursuit of Horticulture. He must be a stern and astute casuist indeed, who can detect any thing in this occupation, tending to inflame, to debase, or to enfeeble the mind. You are well aware, on the contrary, that a garden has been selected by all poets of all nations, as the abode of the virtuous in a future state; that Horticulture has often been recommended by the strictest moralists, not only as a soothing, but as a most refining occupation; and that the wonders of creative power, with which it renders us conversant, have furnished the natural theologian with some of his most powerful and impressive arguments.

It is an additional and a most important recommendation to this art, that it does not call upon us to cultivate the mind, at the expense of the body. I have already said that we are a grave, and, I think I may add, a sedentary people. I do not mean to say, that we are not disposed to occasional locomotion, — such an asser-

tion is not lightly to be made, almost within hearing of our railroad cars. But I speak of the constant habits of our community, compared with those of the people of England, and of most other European countries. A large, and certainly not unimportant portion of our citizens, are occupied in professional and literary pursuits, and among these, with one important qualification to be presently noticed, bodily inactivity seems to be a prevailing and an increasing habit. Besides, many of the rising generation, at least in our largest towns, are confined to study, during by far the greater part of their waking hours. It is not for me to determine how far this confinement is necessary or beneficial, in the degree to which it is now carried. It is for those more interested to decide, whether, in endeavoring to accelerate the march of mind, we have not forgotten, that the mind is vitally connected with an associate of delicate and curious structure; indeed, but of grosser elements, whose wants and whose welfare are, nevertheless, not to be overlooked with impunity.

If there be evils attendant on our present systems of literary discipline, perhaps the greatest is, that they create habits of bodily indolence,

and the scholar, when emancipated from the dominion of his instructors, and invested with the command of his own time, carries with him a fondness for sedentary amusements. Consequently, if his business should be also of a sedentary character, his whole life, *while it lasts*, is one of close confinement. At any rate, the debilitated health of many of our most distinguished professional men, has long been a subject of the deepest public concern; and to no cause does the evil seem to be more imputed, than to their neglect of habitual exercise. Why else is it that our clergymen are so often driven from the desk, and our lawyers interrupted in the midst of their most intense and important labors, while our physicians, the only class of professional men who are compelled to pass much of their time in bodily motion, are proverbially healthy, — and it is no rare spectacle to see them dispensing, in their own case, with the rules, which they feel it their duty to prescribe to others. That amusement, then, is certainly to be highly valued, which calls us forth into the open air, during a large portion of the year, and by its double operation on the body and mind, contributes at once to our strength and spirits —

two objects which it needs no physician to inform us are most nearly connected.

It is, therefore, a highly gratifying fact, that the directors of several of our literary and theological institutions, have labored to inspire their students with a taste for gardening, and have furnished them with every facility for its cultivation. For, however incontestable the value of exercise, every one knows, that it is beneficial to a great degree in proportion as it is agreeable; that of two descriptions of exercise, *that* is by far the most salutary which is taken with the keenest relish. Compare the resolute dyspeptic accomplishing his measured walk or ride, with the same dogged pertinacity, with which he would prepare himself for a surgical operation, with the florist, culling his plants, in our fine woods, or cultivating them in his neat garden, while hour after hour glides by unmarked, and the sun goes down upon him in the midst of his interesting labors. Compare, I say, these individuals, and then ask, if you can, seriously, which is pursuing the shorter road to health and cheerfulness.

It is not, however, in our brilliant though short spring, our blazing summer, or our glorious au-

tumn, that the charms of this art are most deeply felt, but amid the rigors of our stern though splendid winter. It is then, when the whole vegetable world is hushed in dread repose, — when the earth is covered with a sheet of ice, as with a plate of burnished steel, that Horticulture proves herself a true friend to her faithful votaries. It is then that she goes with them to their dwellings, there to diffuse her soothing and enlivening influence, while all without is wild and desolate. Who would not court the visits of such an inmate? Who but would delight to give her her appropriate and honorable place at the fireside or the window?

This art is, however, something more than a mere passing amusement. It well deserves to be cherished in our country, for the auspicious influence which it must exert on the manners and feelings of the community, should a taste for its splendid productions become a prevalent one. Mankind have found by experience, that the contemplation of what is graceful or beautiful, serves to correct and refine the taste, to expand and elevate the understanding, to soften and purify the heart. How these results are produced, it is for the metaphysician to explain, if

he can; the results themselves are not the less real nor the less manifest. It is on this principle, that the fine arts have been so carefully cherished by the ablest statesmen of older communities. No one, acquainted with the history or condition of those communities, can doubt, that those arts have done much to counteract the evils of defective systems of government, and to supply the want of general education. With us, their progress must be for a long time, for obvious and cogent reasons, extremely limited, — at least, this must be said of those two most delicate arts, painting and sculpture.

It is, therefore, a most fortunate circumstance, that we can supply their place with other elegant pursuits, and, among these, that of which I am now speaking, surely deserves a most conspicuous rank. If the assiduous contemplation of choice specimens of art is not only a pleasing but a most useful occupation, it is certainly something more than a mere frivolous amusement, to contemplate these lovely forms of vegetable life, with which Horticulture renders us conversant, which, to say the least, are neither less curious nor less splendid. If an exquisite taste for the beauties of fine pictures is to be

deemed an elegant accomplishment, I know not how an equally exquisite taste for the beauties of fine flowers, should deserve any less honorable title. "Some people," says Cobbett, in his usual homely but perspicuous style, "may think that flowers are of no use, that they are nonsensical things. The same may be, perhaps with more reason, said of pictures. For my part, as a thing to keep and not to sell; a thing, the *possession* of which is to give me pleasure, I hesitate not a moment to prefer the plant of a fine carnation, to a gold watch set with diamonds."

If, however, the productions of the gardener's labors are not to be placed in the same rank with the works of the painter or sculptor, they possess what, in our country, is a most important advantage over them, namely, that they are within the reach of the great mass of our community. Pictures and statues are, even in older nations, confined to the precincts of cities, or the villas of the opulent. Not so with fine flowers. The proprietor of the smallest farm in the country, or the inhabitant of the humblest tenement in the city, may decorate his house with ornaments, surpassing in richness and delicacy, the most costly productions of the upholsterer.

The furnishing of a single apartment in a style of very moderate splendor, involves a greater expense, than many florists incur at seed-stores and nurseries, during the whole course of their lives. Well, then, does this art deserve encouragement, in our republican and economical country.

To what I have said of its intellectual and moral effects, I should add, that, were it generally cultivated, very much would be done for the advancement of its kindred art, the most important, by far, of all arts, Agriculture. In our country, where land is cheap and labor high, our farmers are strongly induced to spread their efforts over a large surface, to cultivate a great extent of ground superficially, rather than a smaller portion thoroughly. This practice, if justified to some degree by the circumstances of the country, has been carried quite too far for good taste, or even good economy. Nothing would tend more to check the evils consequent on such a system, than the general practice of gardening. It is in a garden, that we should learn those principles of neatness and order, that thoroughness in subdividing and enriching the soil, that war of extermination against weeds

and insects, and, above all, that vigilance in embracing precious and fleeting opportunities, which are the prominent characteristics of the thriving farmer. It is by this cultivation in miniature, so to speak, that we should be kept from despising those little things which, in agriculture as in every thing else, must ever be duly regarded by all who aspire to great results. If every farmer among us were, also, a florist, — and every farmer may be one to a considerable degree, — the neatness and precision of his gardening operations, would soon extend itself, — if not already existing there, — to his field cultivation, and our villages would exhibit much of that exactness and elegance, so conspicuous and so pleasing in our Shaker settlements.

I repeat it, — every farmer, and I may almost say, every man in the community, may be, if not a distinguished, yet a skilful florist. One would suppose that little else would be necessary to render us so, than the contemplation of the splendid example which nature has set us, in the profusion with which she has scattered over our land the choicest treasures of the vegetable world. America may be denominated the classic ground of the botanist; and, as the painter or

sculptor visits Italy, to study the wondrous works of Raphael or Angelo, so to the admirer of magnificent and beautiful plants, no country can present more interesting objects than ours. None is endowed with a richer variety of indigenous productions; from the mountain pine, whose summit seems lost in the clouds, to the velvet carpeting of mosses which overspreads the margin of the rivulet. We possess many wild flowers, which want no other recommendation than that of rarity, to entitle them to rank with the most costly exotics. Witness the stately Rhododendrons of Medfield, and the spicy Magnolias of Cape Ann. What spectacle can be more magnificent than that presented by our woods on the banks of the Connecticut, when their shady recesses are absolutely illuminated with the brilliant and clustered blossoms of the Mountain Laurel. Above all, what exotic can surpass our Pond Lily? — a flower, rivalling in beauty the far-famed night-blooming Cereus, — possessing, too, a most delicious fragrance, which is altogether denied to its kindred in the Eastern world, and which is so delicate and ethereal, that all the power of Chemistry is insufficient to arrest and retain it. The Rose has

been long denominated, by the consent of the civilized world, the queen of flowers, and far be it from me to disparage her pretensions; but if the choice were now to be made, we might call upon her to divide, at least, her royal honors, with this splendid nymph of these western waters.

In these remarks, I have confined myself to the culture of flowers, because this is a branch of horticulture accessible to all. From the raising of trees, most of the inhabitants of this city are altogether debarred. Our few remaining gardens are rapidly vanishing before the spirit of improvement. In a short period, their places will be supplied by massive structures of brick or stone, and our magnificent Common may be the only green spot in our peninsula. Those of you who enjoy facilities for the propagation of fruit-trees, need no admonitions from me to improve them. Few of us can hope to render greater service to the community, than those who are thus occupied. If he, who makes two spires of grass grow, where one grew before, is a public benefactor, what shall we say of him, who introduces, or who disseminates a new and delicious variety of fruit, and thus contributes to the

innocent and salutary pleasures, not only of his contemporaries, but of multitudes yet unborn? The gratification thus ministered to each individual, singly, may be deemed trifling; but when we consider the number so gratified, how immense is the aggregate of human enjoyment!

How long and how gratefully must such a gift be remembered. Of what moment to us, are the undaunted valor and consummate generalship displayed by Lucullus, in his victories over Mithridates. They served only to bring one more gallant monarch into subjection to that haughty and gigantic power, whose iron sceptre has long since been shattered, to add one more jewel to the diadem, which has been for ages trampled in the dust. But the taste and assiduity of the Roman general, in naturalizing the cherry tree to the climate of Europe, has entitled him to the grateful commemoration of sixty generations. The empire, which France labored to establish on our continent, has long since passed away. The chain of fortresses which she erected on our northern and western borders, with so much skill, and at such a cost, is rapidly vanishing from our soil. Her very language is fast departing from those regions, before the

silent and peaceful progress of our institutions. But the orchards of magnificent and venerable pear trees, planted by French colonists on the banks of the beautiful Detroit river, yet remain, a noble monument to the honor of the parent country of modern Horticulture.

How few can hope for a reputation so extensive, so enduring, and so enviable, as that which will be awarded, both in his country and ours, to Thomas Andrew Knight. How long and how highly shall we honor this high-minded Englishman, as the disinterested and unwearied benefactor of our infant Horticulture. How nobly has he exemplified the great truths, that the firmest loyalty to our own country is compatible with the utmost liberality towards others; and, that when the culture of the soil is in question, our views should know no other bounds, than those of the great family of man. A few years, I trust, will show, that there are those among us who emulate his achievements, as I am sure there are many who partake of his spirit. I speak from high authority, when I say, that the friends of Horticulture in Europe are turning their eyes anxiously to our country. They are looking to our bright skies and fresh soil, for new

varieties of delicious fruits, to supply the place of those, which, after centuries of existence, are at last passing away. Hopes so just and reasonable, are surely not destined to return void.

I have thus endeavored to state some of the principal motives which should excite us to the pursuit of Horticulture. There has been much unsaid, and, probably, much unthought of on my part, which your own reflections may readily suggest to you. I have detained you longer than I intended; but I should be obliged to make a large additional demand on your patience, were I to bestow even a passing notice on many important and appropriate topics which I have passed over in silence. I have said nothing, for instance, of the raising of ornamental trees, nothing of that most interesting spot, the cemetery at Mount Auburn. These omissions are of the less consequence, as so much has been said on these topics, and so well said, on former occasions. And now let me ask those of you who are parents, one simple question. Is there a taste for any ornamental pursuit which you would behold springing up in the minds of your children, with more pleasure, and with less apprehension, than a taste for Horticulture? If it

be thus, it is surely an important subject of inquiry how such a taste may best be created, increased, or disseminated.

And here I may be told, that, when I speak of creating a taste of this description, I speak of what is impossible; that it is exclusively the gift of nature; that where she has bestowed it, little culture is requisite, and where she has withheld it, all effort is unavailing. It is not necessary to maintain that nature has made no difference between individuals in this respect, but I am warranted in saying, that, in this, as in many other instances, what we call nature is nothing but early habit or early association. This has been shown in much stronger cases, than that which we are now considering. Can any suppose, that if we were all conversant with fine flowers from our infancy, if every porch could boast its festoons of honeysuckle, every fence its clusters of roses, and every window its ranges of bulbs, nothing would be done towards rendering Horticulture a general and a favorite pursuit. Those who think thus must deny all that has hitherto been believed, respecting the spirit of improvement, the power of habit, and the force of example.

It was the wish, then, to create and diffuse a taste for Horticulture, which led to the foundation of our society. To the merit of introducing this art among us, the society makes no pretension. It already existed in a considerable degree, more especially in this city and its delightful environs, and in other large towns. There were men among us conspicuous for their talents and public spirit, as displayed in their services to many of our most valuable institutions, but who had nowhere labored more zealously, more disinterestedly, or more successfully, both by precept and example, than in behalf of our Horticulture. There were those of retired habits, who had found in this art an exhaustless and a most dignified occupation, for their many intervals of leisure; and there were men deeply immersed in active business, pursuing their respective callings amidst all the dust and bustle of the city, among scenes apparently the most uncongenial to every thing rural, whose gardens and windows yet bore splendid testimony to their susceptibility to the charms of nature, and their skill in calling forth her wonder-working powers. These facts spoke much for the taste and refinement of our community, and not a little, certainly, for the charms of Horticulture.

Of most of those individuals to whom I refer, I am forbidden to speak as I could wish, by the delicacy which we owe to all within the circle of our personal intercourse. I must be permitted, however, to allude particularly to one, who has lately retired from that circle;* I mean the gentleman who has presided over our society, ever since its formation, but who for many years previous, had devoted much of his time and thoughts to Agriculture and Horticulture. You well know, my friends, how he has labored in our cause. You are all aware of the aid which it has derived from his powerful and accomplished mind, his unwearied industry, and his elevated character. His services will long be respectfully and gratefully remembered; and I am sure that I speak in the name not only of all who hear me, but of all who know him, when I express the best wishes for his health and happiness. Wherever he may go, though no longer *among us*, he will never cease to be *of us*.

But whatever may have been the progress of Horticulture in Massachusetts, previous to the

* Gen. H. A. S. Dearborn, who had then removed to the West, but who afterwards returned, and has since deceased.

formation of this society, it was still rather a solitary than a social pursuit. Every one pursued his own course,—neither acquainted, to any great degree, with the improvements of his neighbor, nor assisted by his advice, nor excited by his success. Horticulture had its own charms to recommend it, and these were many and various; but its cause wanted all that aid, which is derived from the union of numbers, deeply interested, in the pursuit of a common and favorite object. Our society was established to remedy this important disadvantage, to bring the friends of Horticulture into close contact, to afford inducements for that social interchange of sentiment, from which the mind gains new light, and the feelings new warmth; to diffuse knowledge, to correct error, and to call into action those master-spirits of the human mind, the spirit of emulation, and the spirit of improvement.

Of the merits of the society, we leave the public to judge. Its success has surpassed the expectations of its most sanguine members. Those who wish to know the extent of that success, are referred to our nurseries, our markets, and our fruit-stores. In the retrospect of our progress, we ought not to forget, how much our

hands have been strengthened, and our spirits cheered, by the friendly encouragement we have received from other horticultural societies, and more especially should we acknowledge the courteous and flattering attentions bestowed on our society in its infancy, by those of London, of Paris, and of New York. Our public authorities of the State and city, have not been wanting in bestowing upon us their support and favor, within their respective spheres of operation. We are indebted to the legislature, for the enactment of most just and wise provisions for the protection of our gardens and orchards, — laws which, we trust, will be powerfully effective, not only as a terror to evil-doers, but in creating a wholesome public sentiment, and diffusing through the community a proper respect for the rights of the industrious gardener to the fruits of his science and assiduity. It is owing to the courtesy of our city government, that we are now enabled to assemble in this spacious and renowned hall. The spectacle before you owes much of its splendor to the kindness and liberality of those individuals, who have consented to expose on this occasion, I am sure I ought not to say to hazard, the choicest produc-

tions of their gardens and greenhouses. That our fellow-citizens generally are not indifferent to our success, is a fact of which we need no other proof than the audience who have this day honored us with their presence; and I have only to say, that I can have no fears for the success of Horticulture, while I see our exhibitions thus supplied and thus countenanced.

ADDRESS

DELIVERED AT CONCORD, OCTOBER 4, 1848,

BEFORE THE

MIDDLESEX SOCIETY

OF

HUSBANDMEN AND MANUFACTURERS.

20

ADDRESS.

MR. PRESIDENT AND GENTLEMEN: — I have not accepted your invitation to address you, on this occasion, in the hope of presenting to you any thing novel, elaborate, or in any way striking. Had I supposed that such expectations were entertained on your part, I should probably have declined the appointment. The great business of Agriculture is one, in which most of you are better versed than I am, and you have, year after year, been addressed upon it by the ablest and most experienced of your members. But I am satisfied, that you expect nothing more than a few plain remarks, offered from a sincere desire to suggest to your consideration some useful topics, and to manifest my interest in the progress of Agriculture. Under these circumstances, the

request, with which you have honored me, presented itself with a force, which I did not feel authorized to disregard.

I have thought, gentlemen, that I could not better occupy a few passing moments, than in some suggestions in relation to a very few of the most prominent difficulties and obstacles, which the farmer in this region is called upon to encounter. They are such suggestions, as have occurred to me in my own experience, or have been derived from those better skilled in farming than myself; and they are offered the more freely, from a confidence that they will be estimated according to their due weight, and no more.

The first difficulties, in the way of our farmers, which I shall notice, are those resulting from our climate. This has been well described by Washington Irving, as fierce in all its extremes, but splendid in all its vicissitudes. So frequently and so suddenly do these vicissitudes occur, as to set all anticipation at defiance. We are tempted to think that the laws, which govern the changes of temperature in other regions of the globe, are entirely suspended here; and had Shakspeare ever visited our shores, we might suppose that it was from our climate that he

drew his beautiful picture of the disordered seasons.

"And thorough this distemperature, we see
The seasons alter. Hoary-headed frosts
Fall in the fresh lap of the crimson rose,
And on old Winter's chin and icy crown
An odorous chaplet of sweet Summer buds
Is as in mockery set. The Spring, the Summer,
The chiding Autumn, angry Winter, change
Their wonted liveries, and the amazed world
Through their increase, now knows not which is which."

It is not only from season to season, that our transitions are thus rapid, they occur weekly and almost daily; so that a single day sometimes exhibits what may be called, without violence, an epitome of the whole year. But, after all, these sudden and severe changes, this fierceness of heat and intensity of cold, these rapid and violent alternations from the one to the other, however they may task the skill of the mere gardener, produce far less injury than might be supposed, in our great agricultural operations.

But there is one feature of our climate, which is a far more prolific source of anxiety to the farmer. I allude to our long droughts. These occur so frequently, I had almost said so con-

stantly, that a season entirely exempted from them is to be considered merely an occasional exception. Can any thing be done to alleviate the effects of these visitations? But little, it may be said; yet I think, much more than has been generally imagined. To hope to supply the want of rain by artificial watering, applied upon a scale of any extent, must of course be entirely out of the question, inasmuch as a single shower of one inch — and this, though a copious, is by no means an extraordinary shower — furnishes to an acre of land about a thousand barrels of water. We can render no assistance to our grass and English grain; but for our trees, and for every crop which admits of culture by the plough or hoe, there is one simple expedient, which has been greatly undervalued and neglected. I mean the stirring of the soil. This practice has been scarcely noticed by agricultural writers. I find no mention of it in English books; perhaps because in Great Britain a drought is comparatively a rare evil; and the first publication I have seen upon the subject, is a communication by the late Mr. Lowell, to the editor of the New England Farmer. It seems probable, that when the earth is loosened and its

pores laid open, it acts like a sponge, in absorbing moisture; but whatever the mode of operation, the fact is certain, that, by repeatedly stirring the soil in dry weather, a moisture on the surface is invariably produced, and any one may satisfy himself on this point, in a few minutes. If the stirring of cultivated ground were perseveringly followed, at short intervals, in our summer droughts, the effect would be far more striking, than any one, previous to such an experiment, could easily imagine; and the plough and hoe, in addition to their other most valuable qualities, would prove, so to speak, no ordinary watering-machines.

The soil of Massachusetts has, certainly for the most part, no pretensions to the character of great natural fertility. Its virgin richness, such as it was, has long since been exhausted. But, in truth, there is no evidence that this richness was ever more than moderate, and earlier writers speak of our land in much the same terms as would now be employed by a discriminating observer. It is, therefore, of the more importance, to increase this natural wealth, by skilful culture and nourishment, and most especially to observe the greatest care in a rigid economy and judi-

cious application of manures. This subject was treated with great ability, and with the utmost directness and perspicuity, by the late Colonel Pickering, in his address delivered about twenty-five years since at Brighton, and published in the New England Farmer, to which I refer for full information.

The health of our domestic animals is a topic on which, from its high interest, I feel compelled to detain you for a moment. It is a topic on which no good farmer, I might add no good man, can well be indifferent. Our climate seems, on the whole, highly favorable to the health of these animals. Still, as they are of necessity liable to various diseases and accidents, every thing relating to their physiology must be highly interesting. It is a dictate not only of economy, but humanity, that these casualties should be fully understood, and nothing should be left undone to remedy or to avert them. With regard to the first of these, that is, the curing of diseases after they have once appeared, our power, at best, is exceedingly limited. Little can be done to assist nature, and perhaps we best discharge our duty, by interposing as little as possible in her operations. Napoleon, no mean authority, certainly,

in point of intelligence, repeatedly declared, in his last illness, his distrust of all medical prescriptions, as applied to the human subject. "Doctor," said he to his favorite physician, "no drugs! You are like a watchmaker, who should endeavor to put a watch in order which he could not open. For once that he could effect any good purpose by thrusting in his crooked instruments, he would a thousand times break or derange some part of the hidden machinery." I shall certainly not presume to say, that these remarks of Napoleon admit of no qualification. If we should hesitate to decide where doctors disagree, much more should we hesitate to dogmatize where doctors might unite against us. But if we are greatly in the dark, as to the operations of nature and of disease in the human frame, and I suppose no candid physician would deny thus much, far more obscure must be our course in treating the diseases of animals, especially as they have no tongues to express their own sensations. Their anatomy is a subject which well deserves the attention of the medical faculty, and with which every farmer should be, in some little degree, acquainted. And yet, there are few subjects on which our information, writ-

ten and unwritten, is so little reliable. The greatest evils which disease often brings upon our cattle, are the useless, aye, and tormenting, prescriptions to which these poor creatures are sometimes compelled to submit. Compared with such treatment utter neglect is merciful, and our cattle have certainly a right to ask that nature should have fair play, in working out her own beneficent ends, or in submitting quietly and peaceably to inevitable necessity. Some of our most distinguished surgeons, greatly to their honor, have applied themselves with deep interest to the study of comparative anatomy, and the Massachusetts Agricultural Society are now endeavoring, with a good prospect of success, to induce some young physician to devote himself entirely to this most important and most neglected pursuit. Still, where we have the option, it is far better to avert disease than to combat it, and much may be done in this way by every vigilant farmer. "In all let nature never be forgot," was the precept of the poet, in ornamental matters; and in what are called more useful ones, there is no safer rule. Let us treat our cattle as well as we can, lodge them comfortably, feed them generously with their natural suste-

nance, keep them neat, avoid undue exposure, and govern them in a spirit of kindness and good-humor, and we shall leave little foothold for disease, and few occasions for the science of the cattle doctor.

I have thus, Gentlemen, spoken very briefly of a few of the difficulties with which our farmers are called to struggle. Of many others I have not time to speak, however slightly. I shall mention only one more obstacle to agricultural improvement, not peculiar to us, but existing with very few exceptions, in all countries with which we are acquainted; and this is the fact, that instruction in the elements of agriculture, makes no part of our systems of early education. I do not mean to claim for this science a leading place in those systems. I am far from wishing, for instance, to give it that predominance, which our highest seminaries have united in assigning, and most wisely, in my humble judgment, to the classics and the exact sciences. To invigorate and discipline the intellect is of as much moment, as to store the memory. We are not lightly to disparage those systems of regular education, which it is apprehended, have most clearly proved their merits by their fruits, and

which have found no warmer friends, or more liberal benefactors, than among men, whose intellectual, like their material wealth, has been gained with scarce any instruction or assistance from without, by their own vigorous capacities and constant industry. But the degree of instruction in the great principles of agriculture, which I am recommending, requires no such long course of study. It might be given in a series of lectures, which could easily be composed and delivered in a single summer, by any one, possessing in any considerable degree, that combination of genius, of easy and elegant composition, and of practical knowledge of agriculture, so conspicuous in Jefferson, in Pickering, and in Lowell, to say nothing of other writers, among the living or the departed. Such a course has been actually given in Edinburgh by Prof. Low, whose work on that subject, in a single volume, combines more of the desirable qualities of a Text-Book on Agriculture, than any with which I am acquainted.

We know that scarcely ever will a taste of any kind develop itself in the human mind, unless its seeds are sown there in early youth, and how many of our most able and accomplished

young men might become the votaries or friends of Agriculture or Horticulture, were their attention called to these subjects at a season when the intellect is awake to every object, and the feelings susceptible to every impression.

My friends, I have scarcely time left to congratulate you on the improvement in our Agriculture, and its elegant sister art, Horticulture, which has taken place within our time, nor to point out the causes of this improvement, though I stop a moment to say, that among *these*, societies and cattle-shows, like those now assembled and held on this spot, must always maintain a conspicuous station. But this is a proper occasion to pay the tribute of a passing notice to the memory of some of those distinguished men, who, for a long period, proved themselves most enlightened and constant friends of agriculture, by their example and their writings, and who have been for years removed beyond the reach of human applause. It is unquestionably to the influence exerted by such men, that our agriculture is greatly indebted for its present advanced condition, and this probably to a degree far higher than can be estimated; for what earthly sagacity can trace or limit the action of truth,

when once cast abroad by a powerful and eloquent mind, into the great world of intellect. Of these departed friends to this great interest, I have room to speak only of very few of the most distinguished.

WASHINGTON gave abundant proof, in his life and writings, of his deep and abiding interest in the cultivation of the soil, his comprehensive views of the agricultural resources of our country, and his sagacious foresight in pointing out the internal communications which would best call those resources into full and vigorous action. There is equal evidence, that his example, as a farmer, was in keeping, in every way, with his course, in all those high spheres of action, to which, for our best good, as well as for his own undying memory, it was the pleasure of Providence to call him. The vigilance, the comprehensiveness of plan, yet exactness of detail, the mixture of energy and caution, of reflection and activity, by which he was so singularly marked in his public conduct, were as strikingly and constantly displayed in his agricultural operations. Had he written at large upon agriculture, there is no reason to doubt, that he would have displayed the vigor of thought, and the simplicity,

perspicuity, and neatness of language, which have given him, as a mere writer, no mean rank in the literary world. But his general observations on Agriculture are few, not sufficient in amount to entitle him to the name, in any usual sense of the words, of an agricultural author.

The remarks of JEFFERSON on agricultural subjects are, I need not say, expressed with the clearness and elegance of every thing which proceeded from his pen; but they are scattered in different parts of his correspondence, and incapable of being embodied in any regular essay. There is evidence everywhere of a preference for the country and for rural life, which seems to have been in no degree quenched by the large share he took in every important branch of political and literary inquiry. Though he can scarcely be called an agricultural writer, he is entitled to high distinction, as a friend to agriculture, from the improvements which he made in the construction of the plough. This most important of all instruments has been used in the old world for thousands of years, and yet there are good reasons for believing that it has been more essentially improved, within the last half century, than in all past time. Look at the plough used by

old Roger Sherman, side by side with the improved ploughs which you are now driving, (and this some of us have actually done, a very little time since,) and you might suppose that scores of centuries had rolled away in the interval. Now the person who first, at least in this country, gave to this subject its due share of attention, was JEFFERSON. More than fifty years ago, he was intensely occupied in contriving a mould-board of the least resistance, an object, of which the consequence is self-evident to every farmer. I have the authority of a French standard work of the highest reputation, for saying, that Jefferson was the first who ever gave any formula, by which the proper curve could be given to this important part of the plough, and thus established a fixed rule for what before was a matter of mere imitation, I had almost said mere accident!

The two friends of Agriculture, whom I shall now mention, were highly honored citizens of our own State, men who wrote much and well on agricultural subjects, and who manifested their knowledge and their interest in them, by able and valuable addresses, delivered within the limits of this county.

The first of these was the late Colonel PICKERING. No writer on these topics, in this or any country, has written with more practical good-sense, and philosophical power of generalization. His address at Brighton, to which I have already alluded, is, in fact, a most valuable treatise on the whole subject of Massachusetts agriculture, and comprises information on the most important topics, which no ordinary mind could have condensed in the same compass. He also wrote largely in other essays, on the much vexed question, on the importation of foreign animals, and on forest trees, and contributed materially to the documents of the Agricultural Society of Essex County, over which he presided for many years. Colonel Pickering was not an impassioned, nor perhaps a highly elegant writer. But his style was marked by great neatness and precision, concise almost to a fault, but yet free from obscurity, plain and sometimes homely, but always natural, grave, and suited to his subject. His mind was uncommonly searching and logical, and he seldom took up a topic without nearly exhausting it, and leaving little to be said, at least on his own side of the question. His writings, if collected, would form a most valuable

body of agricultural information, and I believe our enlightened farmers, generally, would feel called upon to differ from very few of his conclusions. His interest in agriculture, as well as his intellectual vigor, continued to the end of his long life, and the last time in which he appeared in any way before the public, was in the delivery of an agricultural address to the society of his native county, about three months before his death.

There is no friend to Massachusetts agriculture, who will deny that it has been deeply indebted to the writings and personal influence of the late Mr. LOWELL, of Roxbury. This gentleman was long known and respected among us, and distinguished for his warm and liberal feelings, his vigorous and acute powers of reasoning, and his copious natural eloquence. He wrote much in his early days, on questions, on which the honest and intelligent men of his time were greatly divided in opinion, and which are now of little moment, except as mere matters of political history. But, for the last twenty years of his life, his pen was devoted almost exclusively to agricultural subjects. On these subjects he wrote more perhaps than any man of that day in

the Commonwealth, if we except the lamented Thomas G. Fessenden. Mr. Lowell was the chief support of the periodical work then published by the Massachusetts Society, (over which he presided,) and more than once addressed that society at the public shows in Brighton. He entered upon the discussion of agricultural questions with the same intelligence and frankness, the same sincere, if not always successful desire to arrive at a correct result, which have marked his productions on other topics. As a writer, he was unambitious, not to say careless, in respect to mere finish and ornament, but he always wrote with the greatest simplicity and earnestness, and there was such an evident knowledge and interest in his subject, such a copiousness of illustration, and easy flow of language, so much of that which reaches the heart, because it comes from the heart, that I know of no agricultural author better entitled to the character of an impressive and interesting writer.

The great men, whom I have mentioned, were, as you know, not distinguished as farmers merely. They were deeply engaged in political questions, which were never more agitating than in their day, and on many of these questions

differed widely from each other. But their political friends and foes could bear witness, that neither of them carried his party feelings into his agricultural investigations. Here, to borrow a happy phrase of Jefferson on another occasion, they were "all Federalists, all Republicans," all warmly interested in the subject, all governed by feelings of patriotism and philanthropy, all anxious to improve our agriculture, and promote the prosperity and well-being of our great rural population. Men of their comprehensive minds, could not fail to appreciate this object. If the greatest poet and brightest genius of ancient Rome, in a panegyric on rural life, to which two thousand years have failed to produce a parallel, could ascribe the unequalled greatness of his country to the domestic virtues, which cluster round the farmer's dwelling, with how much more reason must we look to that spot for the security of our best interests, under the influence of a purer faith, and of a general system of moral and intellectual education, of which the ancient world scarcely dreamed.

I shall draw no parallels between country and city life. The town and the country have their respective moral obstacles and advantages; and

I should deem it idle to engage in nice comparisons, and far worse than idle to indulge in invidious remarks. I am sure that I should gain no favor from you, by disparaging (if I were capable of so doing) the character or the occupations of your brethren in our cities, more especially the city to which I belong. Her population is recruited in no small degree from your ranks; her sons, as well as her capital, are every day transplanted to the banks of your rivers; from your beautiful lakes she is just deriving one of the vital elements of physical life; and her children are annually crowding to the ancient and unfailing fountain of knowledge, which was erected within your limits more than two centuries ago, there to imbibe the elements of a nobler existence. With such a connection of interests, such a reciprocity of benefits, such an all but identity of population, what room can there be for any feelings between country and city, but those of the deepest concern and good-will for each other's welfare!

Still, the greater part of our population must always be rural, and to every enlightened lover of his country the occupations and happiness of the farmer must be matters of deep and abiding

interest. I have no time to speak of our political and social institutions, in a way becoming the subject. Nor is it at all necessary. Whatever we may think on other matters, I am persuaded that there is no diversity of opinion among us, as to the great political and moral principles which lie at the foundation of our existence as a people, and by the observance or neglect of which we are to become the model or the byword of the nations. We may differ on many questions not unimportant, but I am satisfied that the rent never descends to the foundation; I am sure that I speak the sentiments of all of you, in saying, that the threefold cord, which is to bind us together as a free, enlightened, and happy community, must be that woven by the combined influence of the SCHOOL, the CHURCH, and the FIRESIDE. But to a complete and enlarged patriotism, I think it desirable, if not essential, to possess a just appreciation of the material resources and natural scenery of our native home, a deepfelt interest in its very soil, a wish, if possible, to leave impressed upon it some lasting token of our affectionate regard. Who can manifest such an interest, more extensively or more permanently, than the cultivator? Whoever

rears a single fine flower in front of his dwelling, gratifies hundreds of beholders by a spectacle, far surpassing in grace and loveliness all the wonders of the chisel or the pencil. Whoever plants a fruitful orchard or magnificent grove, erects a monument of his taste and benevolence, which will call forth the grateful acknowledgments of those who may follow him, at the distance of a century. To what of our own handiwork, to what, that can fall from the lips or the pen of any of us, can we promise a continuance half so enduring? We cannot all of us be farmers, few indeed of us can be able agricultural writers, but we can all do something, directly or indirectly, and let each do what he can to ornament the face of our country — *Great parent of Fruits* — and we trust not barren of MEN, whose bright skies and bracing atmosphere have given health to our frames, vigor to our arms, and elasticity to our spirits; which has unfailingly supplied our wants from her bountiful lap, and which, we trust, long after her peaceful bosom shall have been opened to take us to our final rest, will be the country of a free, a virtuous, and a happy people, through countless generations.

ESSAY ON DANTE.

ESSAY ON DANTE.*

It is the fate of many of the Italian writers, to enjoy a reputation equally just and splendid in their own country, and to be comparatively little known to the rest of the world. Such has been more peculiarly the lot of Dante, one of the earliest, and if Italians are to judge, by far the greatest of them all. He has received for five centuries the title of Divine, is revered as the father of Tuscan poetry, and many of the most celebrated writers of that school have passed much of their lives in explaining his difficulties and extolling his beauties. Faults, if we may believe the greater part of them, he has none; and the more candid maintain the opinion, expressed by Alfieri in one of his manu-

* From the North American Review, March, 1819.

scripts, that more is learned from the defects of Dante, than from the beauties of others. With foreign nations, these high claims are not only unacknowledged, but derided. The inscription over the gate of hell, and the stories of Francesca, of Rimini and Count Ugolino, are the only parts which have been generally admired; the rest of the Divine Comedy is considered as owing the high character which it has acquired at home, to its obscurity only. Dante has been almost wholly neglected by the French, and though read by several of the English, is mentioned by none as he deserves, and by many with the most general and contemptuous censure. Lord Chesterfield has the candor, or the assurance to state that as he could not understand Dante, by great exertion, he did not believe him to be worth understanding. This we cannot but think is the real opinion of many foreigners; while many more are deterred from the attempt by the bare reputation of the difficulty. This idea of the extreme obscurity of Dante is indeed founded, in some measure, in truth, but principally on the representations of the Italians themselves. The Divine Comedy, as Dante informs us more than once, is an allegory, and his

commentators, as might be expected from the nature of the subject, have busied themselves partly in explaining, and partly in creating mysteries. After reading through some of the easier parts, and supposing ourselves in full possession of their meaning, we are told that the larger and better portion remains undiscovered, that the obscurity is the greater because we do not perceive that it exists, because there is not light enough to render the darkness visible. When the commentators have agreed that an explanation is necessary, each proceeds to give his own, and overthrow those of others. We were well acquainted with one now engaged in publishing his lucubrations, who has employed sixteen years solely on this subject, and possesses great natural abilities, and he has declared repeatedly that no person but himself ever completely understood Dante, — Petrarch and Boccacio perhaps excepted. — It is indeed true, that the meaning of the allegory is too faintly disclosed to be discovered with certainty; but why should this deter us from perusing the poem? If we consider its interest heightened by looking beyond the literal meaning, the simplest, most concise, and most obvious interpretation seems in all

respects to be the best. But the story itself is more easy and more interesting, and in this, as in many other fables, it is rather a concern of commentators, than of readers, what mystical meaning we should affix, or whether any, to the simple narration. We read through Homer, and scarcely look at the expositions of the moral said to be involved in his machinery; and are fully satisfied with the pleasure derived from Virgil's description of Hell, without tracing with Warburton its relation to the Eleusinian mysteries, or perplexing ourselves with the insurmountable question respecting the gates of horn and ivory.

Our language possesses a production of a humbler kind, which bears in the character of its general allegory a strong resemblance to Dante's vision; — the Pilgrim's Progress. The complete interpretation of Bunyan's dream is a task, that has baffled the efforts of mature and cultivated minds, while the narrative is the delight of children, in the humblest classes of society. To understand Dante's work, as far as we understand these, requires no uncommon strength of intellect. If the difficulties, arising both from the vocabulary and construction of the Italian language, are greater in him than in the rest of his

countrymen, they are so far removed by numerous and valuable annotations, as to exact only an ordinary degree of assiduity. It is surprising that this has not been devoted to him oftener.

Another reason why Dante is so little known to the English especially, is the want of a popular translator. Hoole's versions of Ariosto and Tasso, dissimilar as they are to their simple and concise originals, have contributed in no slight degree to render them objects of general attention, and consequently general admiration. It would be more difficult and more desirable to present Dante in a translation, which should be at once accurate, spirited, and harmonious, and we find little that deserves this high praise in the only two we know, — those of Boyd and Cary. Boyd has been peculiarly unfortunate in the choice of his measure. We shall select one of his most successful efforts, both to prove our remark, and to represent, even in a humble imitation, the gloomy sublimity of the inscription over the gate of Hell, — a passage which in the original is equally unexampled and inimitable.

"Through me the newly-damned forever fleet
In ceaseless shoals to Pain's eternal seat:

Through me they march, and join the tortured crew;
The mighty gulph offended Justice made,
Unbounded Power the strong foundation laid,
And Love, by Wisdom led, the limits drew.

"Long ere the infant world arose to light
I found a being in the womb of night
Eldest of all — but things that ever last!
And I forever last! — Ye heirs of Hell,
Here bid at once your lingering hope farewell,
And mourn the moment of repentance past."

A poem so long, and yet so concise (we trust our meaning is evident) as the Divine Comedy, requires a style of verse, which can both awaken and support our interest, by its union of sententiousness, majesty, and liveliness.

Our heroic rhyme seems adapted to this purpose, far better than any other kind of English measure, for one more rapid would be too gay, and one more grave would be fatiguing. The selection of so unwieldy a species of verse is one of the slightest defects of Boyd. He has failed to give it the harmony of which it is susceptible, and by a profusion of unmeaning epithets and useless circumlocutions, he has often obscured, and generally weakened the meaning of his author. Yet Dante is deeply interesting

even in Boyd's version, though we should rather refer those, who are satisfied with reading him in English, to that of Cary. This we can pronounce with confidence, to be the most literal translation in poetry in our language. Not satisfied, however, with rendering the sense, he has copied in a great degree the construction of the original. He has forced our language into Italian idioms, with a license which outrages taste, and almost violates grammar. So close is his fidelity, as he probably thought it, that while he evinces a complete knowledge of his author, he occasionally transfuses into his version the difficulties as well as the beauties of the original; and a few of the more obscure parts of the poem exact almost an equal degree of attention in the English and Italian. But if he has failed to explain with sufficient perspicuity some of the perplexing passages of Dante, he has succeeded in many more. As a mere assistant to the English reader, he deserves the greatest praise, and in doing justice to all the striking merits of the original, far excels Boyd. Cary's translation has a very short preface and a few notes. Boyd's is preceded by some just but incomplete observations on the Inferno, but the merits of the Pur-

gatory and Paradise are not formally noticed by either. As Dante's claims to our attention have been so inadequately represented and so hastily disallowed, we shall endeavor to state them faithfully, though imperfectly, in a few remarks; an attempt rendered excusable, if not necessary, by the neglect of English writers.

Dante Alighieri was born at Florence, of noble parents, in the year 1265. We learn from the poet himself, that he was inspired, at a very early period of life (in his ninth year say his commentators) with a passion for a lady named Beatrice, and both poet and commentators assert, that his affection was purely Platonic; a supposition much more probable at that age, than at one more advanced. This passion, however, continued several years without changing its character, and so great was the influence of the lady, the docility of the poet, and the genius of both, that he derived from his acquaintance with her the wisest and purest principles. His interesting guardian was removed by death, in the twenty-sixth year of her age. Notwithstanding the purely intellectual nature of Dante's affections, their vigor soon declined, when he was deprived of her visible and corporeal presence, and as he

no longer felt her influence, he ceased to regard her lessons. His unsustained inclinations soon descended to objects of a sensual nature, and led him so far in vice as to endanger imminently his eternal happiness. Beatrice, now a heavenly spirit, still watched over the destinies of her wayward pupil, and admonished him of his increasing danger by mysterious suggestions, dreams, and visions. Perceiving that these means were all ineffectual, she obtained permission, as a last resort, to exhibit to him the condition of disembodied spirits, the tortures of hell, the chastisements of purgatory, and the happiness of paradise. Such are the circumstances disclosed by Beatrice, in the thirtieth canto of Purgatory; for Dante commences, like most epic poets, in the midst of events, at the period to which we have just brought our readers. The vision is supposed to have happened in the thirty-fifth year of the poet's age, A. D. 1300, and to have occupied three days. The poem opens as follows.

"In the midway of this our mortal life,
I found me in a gloomy wood astray
Gone from the path direct and e'en to tell
It were no easy task, how savage wild
That forest, how robust and rough its growth,

Which to remember only my dismay
Renews, in bitterness not far from death.
How first I entered it I scarce can say,
Such sleepy dulness in that instant weighed
My senses down, when the true path I left; —
But when a mountain's foot I reached, where closed
The valley, that had pierced my heart with dread,
I looked aloft, and saw his shoulders broad
Already vested with that planet's beam
Who leads all wanderers safe through every way."

On endeavoring to climb this eminence, his course is arrested by three wild beasts, a panther, a lion, and a wolf, — said by all his commentators to be images of sensuality, ambition, and avarice, — who not only prevent his ascent, but pursue him into the valley. Here while flying breathless before them, he encounters a majestic figure and implores his aid. This personage announces himself to be Virgil, and after according his protection, discloses a divine commission, lately communicated to him by Beatrice, to exhibit to Dante the two inferior departments of the world of spirits, — hell and purgatory. In conformity with this command, he promises his guidance through those regions, adding that his own want of Christian faith had excluded him from Paradise, and that Beatrice

herself would conduct her pupil there. Dante, after expressing a very natural diffidence, which is quickly relieved, consents to follow Virgil with implicit submission. After reading the sublime inscription already quoted, they immediately enter the gate of the infernal regions. Dante's hell, like Virgil's, is subterraneous. Its form is that of a hollow cone, the base placed at the surface of the earth, and the point at the centre; the interior is divided into circular ledges, and in these the damned are tortured by punishments of different kinds and degrees.

The indolent are not suffered to cross the river Styx, which here, as in the Eneid, forms a sort of interior boundary to the regions of woe. Dante assigns as a reason for this singular exclusion, that their lives were so inactive, so perfectly negative, that even a seat in hell would be too high an honor. They are not however permitted to wander, like Virgil's souls of the unburied, in undisturbed sadness; but are driven along in a perpetual circuit, by the stings of wasps and hornets. Immediately beyond the river is the Limbo, which bears a strong resemblance in its scenery and inhabitants, to Virgil's Elysian fields.

Here are the shades of the virtuous Pagans; for Dante, with all Catholics, maintains that the want of the true faith, though resulting from blameless ignorance, is an insurmountable exclusion from eternal happiness. Virgil informs him, that here also were once confined the souls of the pious Antediluvians and Jews, but that our Saviour at his death entered this region in person and bore them off in triumph. The inhabitants of this part of the infernal world are exempted from all material tortures, and subjected to no other punishment than that of experiencing perpetual and unsatisfied desire. Dante proceeds to view, in the following circles, the pains inflicted on positive and premeditated offences. Here he has displayed his exhaustless invention, in the great number and strongly marked variety of his tortures, but more especially in the peculiar conformity of the punishments to the crimes. A distinct species of both is presented in almost every canto, but we shall illustrate our remark by slightly noticing a very few instances. The souls of incontinent lovers are hurried along in darkness, by an irresistible whirlwind, and those of suicides condemned to

animate trees, and tortured by harpies who prey upon the foliage. Murderers are immersed in a torrent of boiling blood, and the heads of hypocrites concealed and weighed down by gilded cowls of lead. We find the degrees of guilt and punishment increasing as we descend, and the lowest circle is appropriated to traitors, who are inclosed in ice. At the bottom of hell, and in the centre of the earth, stands Lucifer.

After passing this point, the two poets ascend rapidly to the surface of the southern hemisphere, where they emerge into day. The Inferno is not merely a description of an ingenious variety of sufferers, tortures, and executioners. The poet seldom descends into a circle, without selecting and addressing some individual, generally of great celebrity, often one of his own countrymen; and our thoughts are frequently called off from the sombre spectacle before us, by curious and interesting narrations, vehement invectives, and apt and novel similes. Sismondi has translated his story of Francesca of Rimini, and that of Ugolino has been made known to the world by Sir Joshua Reynolds. We shall only mention in addition, the narrative of Ulysses, who informs Dante that he sailed through

the pillars of Hercules, and discovered land beyond the Western ocean.*

On their return to the regions of light, Dante and Virgil find themselves, at early dawn, on a pyramidal island, and are immediately accosted by the shade of Cato Uticensis, who is removed, we know not why, from his Pagan brethren, and appointed governor of Purgatory.

The first canto contains a description equally remarkable for its intrinsic merits and its apt position. Nothing can be more soothing, than, after descending through the continually increasing horrors of the eternal prison, to revisit with the poets our native sphere, to breathe the vital air, to contemplate again the dawn and the morning star, and gaze for the first time at the cross of the southern heavens and the majestic countenance of Cato, on which its beams are playing. With respect to its shape, Dante's Purgatory is best described by calling it his Hell reversed. It is a conical mountain; — transgressors are disposed in different circles round its sides, and its summit is crowned with the garden of Eden. Into this region those are admitted,

* Our readers will recollect that this poem was written nearly two hundred years before the discoveries of Columbus.

who escaped eternal perdition by repentance previous to death. Through this the poet proceeds, and is no longer a mere spectator, as in the Inferno, but an actor in the scenes he describes. The seven deadly sins are inscribed on his forehead by an angel, and disappear one by one, as he rises through the different degrees of punishment, till he reaches the terrestrial paradise.

Here he sees a band of celestial personages, and these, after performing several solemn rites, are joined by Beatrice, who descends from heaven, like Thomson's spring, in a shower of roses. At the sight of her his passion revives in its greatest activity, and he turns round to ask the long-tried assistance of Virgil, but finds that he has vanished. Beatrice orders Dante to direct his regret from the loss of his guide to his own offences; and after relating in his hearing to her heavenly companions, the history of his errors and her efforts, concludes by a direct and severe reproof, which extorts from the poet a heart-felt confession. His repentance is accepted, all remembrance of his remitted offences washed away in Lethe, and his mind, like "a plant

clothed with new foliage," is thoroughly renovated and prepared for paradise.

The Purgatory and Paradise of Dante have been greatly neglected by foreign commentators, and are often styled in general terms, fallings off from his Inferno. With respect to the Purgatory, this remark, if founded in truth, is much too unqualified. Though it may seem at first less novel and striking than the Inferno, it is, in our opinion, the part of all the three, which most invites, and best rewards a repeated perusal. There is something wearying and revolting in descriptions of the hopeless tortures of our fellow-creatures, which depends on our feelings of natural humanity, — feelings too deep to be suspended by all the art of the poet. Our attention can seldom dwell on such images long, and never with unmingled pleasure. It is one of the clearest and noblest proofs of Dante's merit, that in travelling through the Inferno, we feel this disadvantage no more; but though it would be difficult to leave our journey unfinished, it would be unnatural to wish it longer. We contemplate, with far more calmness, the sufferings of the souls in Purgatory, because we can dwell on

their sure prospects of future relief, because their punishments are of a milder and less degrading nature, and because the design is more evidently beneficent. The scenery, too, is more interesting than that of the Inferno, since it is more like our own, and the pathetic passages are introduced much less sparingly. There is indeed a spirit of tenderness running through every part of the Purgatory, which is deeply affecting, and shows that Dante's excellence by no means consisted solely in gloomy grandeur. So pleasing is it as a whole, that it is alike difficult to notice its defects, and select its beauties. We shall make no remarks in this place on the few faults it contains, as they are equally displayed in the two other divisions of the Divine Comedy. To beauties of the same kind with those of the Inferno, it adds many different in their nature, and equal if not superior in excellence. We have noticed already those of the first canto. The eighth opens with a description of evening, equally natural and novel, and, in our opinion, unrivalled in simplicity and pathos by that of any writer whatever. In the tenth and twelfth he describes the figures carved on the rock, for the reproof of the proud, with a spirit and exact-

ness as wonderful as that which he attributes to the artist. In the thirtieth are collected many of the most important and interesting parts of the poem, and the descent of Beatrice, the departure of Virgil, her affecting history of the poet's life previous to the commencement of his supernatural journey, his holy veneration and sincere remorse are all displayed with such an union of simplicity and ornament, as to render this one of the most striking portions of the whole Divine Comedy.

In his Paradise, Dante has introduced the bold and unexampled idea of peopling the spheres of the solar system with the spirits of the blest. He ascends to them with Beatrice, in the succession in which they are placed by the Ptolemaic theory. Each planet is filled with those, whose lives were peculiarly distinguished by the virtues over which it was supposed to preside; the Moon, for instance, with holy virgins, — Mars with warriors for the Christian faith, — Jupiter with upright judges, — Saturn with men of devout and lonely contemplation. After visiting all these, and passing through the "Primum Mobile," Dante ascends to the Empyrean, and there concludes his poem. In the Paradise,

taken as a whole, it must be acknowledged that the reader's expectations are greatly disappointed. It is the most difficult, and happily least interesting part of the Divine Comedy. The poet is perpetually stopping to ask questions in natural philosophy and metaphysics, which after all are solved much more to his satisfaction than that of his readers. He meets with all the saints of the Old and New Testaments, and with many of the most distinguished worthies of the early ages, but seems more intent on rendering his dialogues profitable than interesting, and as scholastic theology was the favorite topic of his age, it is on this he mainly dwells. Dante's Paradise would probably have been far more pleasing, had his astronomy been more enlightened. The real nature of the heavenly bodies was then scarcely suspected. We can hardly conceive the description which one of Dante's powers would have given, had he been acquainted with their similarity, as habitable spheres, to our planet, and with the variety of their magnitudes, seasons, and satellites. That even he should have failed under these circumstances is not so surprising, as that succeeding poets should have made so little use of the interesting discoveries

of modern astronomy. There are however parts of the Paradise distinguished by poetical merits of every kind, in which the author displays his unincumbered genius, and more than rewards us for his perplexing and fruitless disputations. Such is the description of the triumph of the blest in the twenty-third canto, of which we shall select as many lines as our limits permit.

"As in the calm full moon, when Trivia smiles
In peerless beauty, 'mid the eternal nymphs
That deck through all its gulphs the blue profound,
In bright preëminence, so saw I there
O'er million lamps a sun, from whom all drew
Their radiance, as from ours the starry train."

"———— Prompt I heard
Her bidding, and encountered once again
The strife of aching vision. As erewhile
Through glance of sunlight, streamed through broken cloud,
Mine eyes a flower-besprinkled mead have seen,
Though veiled themselves in shade, so saw I there
Legions of splendors, on whom burning rays
Shed lightnings from above, yet saw I not
The fountain whence they flowed."

Previous to any remark on Dante's claims to our attention, we shall devote ourselves to a task

more unpleasant, but more easy, — that of stating his principal defects. There is sometimes, though rarely, the same strange mixture of truth and fable, Pagan and Christian theology, with which the Lusiad is so deeply tinctured. The early part of the poem presents us with one of the most glaring instances, in the doubt entertained of the truth of Virgil's communications, because the high privilege which they announced had never been conferred on any, but Eneas and St. Paul. We have touched upon his fondness for the metaphysics of the schools, in our remarks on his Paradise, because it is displayed principally though not exclusively there.

His work is sometimes rendered obscure by the profusion and variety of his learning, and the concise phraseology into which it is crowded. We are told in reply by his admirers, that it is not he who is obscure, but we who are stupid and ignorant, that it is only a proof of the superiority of his talents and information over ours; but we consider this as a repetition of the objection, in different terms. Authors are bound to display their knowledge intelligibly, or not at all. We look to them for information, and must

be permitted to complain, when we are told that if we were as wise as our masters, their lessons would be perfectly intelligible. We would ask how far in that case their instructions would be necessary or useful? For most of these general defects we may offer a brief and weighty apology, — that they were those of his time, and that they have been imitated by the most celebrated poets in more enlightened days. There are in the Inferno two short passages for which this excuse, were it true, would be insufficient. The punishment appropriated to flatterers, seducers, and parasites, at the end of the eighteenth canto, is too offensive to be described in any way whatever. This passage is indeed countenanced by translators and praised by commentators, but it is in vain to tell us, that it is as well expressed as the subject admits, that no punishment could be too degrading for such characters, and that no class of offenders deserved it better. Allowing these reasons all possible weight, we still maintain that Dante, in his detail of sufferings, should have considered not only what could be justly inflicted, but what could be decently told. We object also to the vulgar incident related at the end of the twenty-first canto, and the jocular

comment upon it with which the next commences; for the humor, which the lines really contain, is too low to render them tolerable, in a poem of much less solemnity and majesty. These passages excepted, the Divine Comedy, long and varied as it is, contains nothing offensive to the most refined ears. There is one well-known habit of Dante, which we think an error merely because he has followed it too constantly, — the lightness, we may say the negligence, with which he introduces many of his most beautiful figures. He just points to their principal features, leaves the rest to our imagination, and hurries onward. We complain, we think with reason, that he has so very unfrequently endeavored to amplify his allusions; the more so because those rare attempts are always successful. Poets, as observed by Lucan, should present by turns the close and the open flower. The same genius which selected the figure, may sometimes be necessary to develop its latent beauties; and if it is a merit to be able to condense, it is a charm to be willing to display.

In attempting to do justice to the merits of Dante's poem, we should consider for a moment the age when it was composed. It was in the

beginning of the fourteenth century, — before our own poetry commenced with the strains of Chaucer, — that Dante presented the world with the first specimen of Tuscan, we may say of modern, literature. But if it is little considered that he was the earliest writer of any celebrity in the living languages, it is scarcely known, to strangers at least, how rich a source of ideas and expressions his work has proved to others. Many of the most admired passages in those Italian poets, whose celebrity is more general than his, are closely imitated, if not exactly transcribed from the Divine Comedy. Ariosto's idea of sending Astolpho to the moon is a natural and easy improvement of part of Dante's Paradise. No portion of the Jerusalem Delivered excites more interest than Tancred's adventures in the wood, which was peopled by the incantations of Ismeno; and yet after reading the account of that, in which Dante has lodged the souls of his suicides, we must allow that Tasso has little of his own except the style. It would be endless to repeat the many passages, which (though unacknowledged and unhonored) he has furnished to the celebrated English writers, who had read him,

and the many more derived from him indirectly by those who had not. For a large number of the most beautiful flowers of modern poetry, the credit is due to him as the first if not the only discoverer. As there are few from whom so much has been drawn, so there are few who have borrowed less.

The first and highest merit of a poet, originality, is apparent in every feature of his production, in its general plan, its narrative and didactic portions, its machinery and its allusions. But novelty, though the universal characteristic, is far from being the sole recommendation of the various efforts of his genius. Of his sublimity foreign critics have formed high but limited ideas. They have seen it principally in the Inferno, and finding it there, as it should be, dark and terrific, have concluded that Dante's genius, like Young's, was distinguished only by sombre energy. The study of his Purgatory and Paradise would convince them he could display a sublimity milder and more serene, that he could vary it with the nature of his subjects, dissimilar as they are. The dryest and most hopeless are never without it long. Even in all the chaos of his most perplexed scholastic disputations, we are occasion-

ally relieved and illuminated, by an idea equally true, novel, and sublime.

> "The sacred influence
> Of light appears, and from the walls of heaven
> Shoots far into the bosom of dim night
> A glimmering dawn."

Dante's tenderness, though, like his sublimity, all his own, sometimes reminds us of that of his adored Virgil. We perceive it in his narratives, his reflections, and his discourses; but in nothing more than in his figures. This is the merit, by which, if by any one more than another, his similes and allusions are distinguished. He was, like all the greatest poets, a close observer, warm admirer, and lively describer of nature. No object was too latent or too insignificant for his notice. But he drew from this universal source with the originality of an elevated mind. He presents no cold and trite images of the daily operations and ordinary beauties of the material world; his figures are either wholly original, or if he ever selects the more commonly observed objects, he develops some charm unknown before; he gives them some striking personification, he annexes some circumstance cal-

culated to touch the feelings, as well as enliven the fancy. A few examples will illustrate our meaning more concisely and completely than any thing else we can add. The following is so much more copious than most of his comparisons, that no previous explanation is necessary.

"In the year's early nonage, when the Sun
Tempers his tresses in Aquarius' urn,
And now towards equal day the night recedes;
When as the frost upon the earth puts on
Her dazzling sister's image, but not long
Her milder sway endures, then riseth up
The village hind, whom fails his wintry store,
And looking out beholds the plain around
All whitened, then impatiently he smites
His thighs, and to his hut returning in
There paces to and fro, and wails his lot
As a discomfited and helpless man.
Then comes he forth again and feels new hope
Spring in his bosom, finding e'en thus soon
The world hath changed its countenance, grasps his crook
And forth to pasture drives his little flock.
So me my guide disheartened when I saw
His troubled countenance, and so speedily
That ill was cured." — *Cary, Inf.* c. 25.

With what an appropriate and impressive as-

pect has he invested the morning star by a single line!

"About the hour,
As I believe, when Venus from the east
First lightened on the mountain, she whose orb
Seems always glowing with the fire of love."

Cary, Purg. c. 27.

We may observe his power of giving an unexpected interest to the most ordinary operations of nature, in his description of the reflection of the rays of heaven from earth: —

"They upward rise
E'en as a pilgrim bent on his return."

Cary, Par. c. 1.

How is the mind refreshed, after an incessant contemplation of supernatural objects, by the following rural images.

"——— As the goats
That late have skipped and wantoned rapidly
Upon the craggy cliffs, ere they had ta'en
Their supper on the herbs, now silent lie
And ruminate beneath the umbrage brown,
While noonday rages and the goatherd leans
Upon his staff, and leaning watches them."

Cary, Purg. c. 27.

"E'en as the bird, who midst the leafy bower
Has in her nest sat darkling through the night
With her sweet brood, impatient to descry
Their wished looks and to bring home their food,
In the fond quest unconscious of her toil,
She of the time prevenient, on the spray
That overhangs their couch, with wakeful gaze
Expects the sun; nor ever till the dawn
Removeth from the east her eager ken;—
So stood the dame erect and bent her glance
Wistfully on that region."—*Cary, Par.* c. 23.

But it is his own species which furnishes to Dante his most animated and interesting figures. Their daily occupations, their domestic life, their very manners, amusements, and dress, have all been made subservient to his ever wakeful genius. We shall commence our selections with two comparisons drawn from the latter sources, as most strongly illustrative of his comprehensive yet exact observation. The poet likens his own situation, when thronged in purgatory by a crowd of eager spirits, to that of a gambler when rising from the table.

"When from the game of dice men separate,
He, who hath lost, remains in sadness fixed,
Revolving in his mind what luckless throws

He cast; but meanwhile all the company
Go with the other; one before him runs
And one behind his mantle twitches, one
Fast by his side bids him remember him.
He stops not, and each one to whom his hand
Is stretched well knows he bids him stand aside,
And thus he from the press defends himself;
E'en such was I in that close-crowding throng,
And turning so my face around to all
And promising, I 'scaped from it with pains."

Cary, Purg. c. 6.

The following figures are introduced to illustrate the indistinctness of some of the airy phantoms of paradise.

" As from translucent and smooth glass or wave
Clear and unruffled, flowing not so deep
As that its bed is dark, the shape returns
So faint of our impictured lineaments,
That on white forehead set a pearl as strong
Comes to the eye, — such saw I many a face
All stretched to speak." — *Cary, Par.* c. 3.

If he has the power of giving a new dignity to the most ordinary subjects, he has no less that of doing justice to the more important and interesting. With what accuracy and delicacy has he represented the finest feelings of the female heart!

"——— My view
Reverted to those lofty things, which came
So slowly moving towards us, that the bride
Would have outstripped them on her bridal day."
Cary, Purg. c. 29.

"And as the unblemished dame, who in herself
Secure from censure, yet at bare report
Of other's failing, shrinks with maiden fear,
So Beatricé in her semblance changed."—*Id. Par.* c. 27.

To these descriptions of female modesty we may add the following of maternal tenderness.

"——— Suddenly my guide
Caught me, e'en as a mother that from sleep
Is by the noise aroused and near her sees
The climbing fires, who snatches up her babe
And flies, ne'er pausing, careful more of him
Than of herself, though but a single vest
Clings round her limbs."—*Id. Inf.* c. 23.

"After utterance of a piteous sigh,
She towards me bent her eyes with such a look
As on a frenzied child a mother casts."
Cary, Par. c. 1.

But Dante's favorite subjects of allusion are the simplicity, helplessness, and playfulness of infancy. Every one has admired in Goldsmith a figure of which the application only is original.

"——— Towards Virgil I
Turned me to leftward, panting like a babe
That flies for refuge to his mother's breast
If aught have terrified or done him harm."

Id. Purg. c. 30.

In the twenty-seventh Par. a portion of the heavenly host are represented under the form of celestial flames;

"And like to babe that stretches forth its arms
For very eagerness toward the breast
After the milk is taken, so outstretched
Their wavy summits all the fervent band
Through zealous love to Mary."

The last figure we shall quote not only serves to illustrate the tenderness of many of his images, but evinces his skill in comparing together objects of the most remote and opposite nature.

"——— Heaven's sphere that ever whirls
As restless as an infant in his play."

Cary, Par. c. 15.

These extracts are, we think, sufficient to show that Dante's reflections on nature are not those of one who studies her only in retirement and observes only her simplest forms.

But his knowledge of the human heart was

not confined to the more tender feelings. His remarks on topics of every species, whether made in his own person or those of the spirits to whom he listens, are so acute and profound as to prove that he had studied human life in its most refined, complicated, and disguised state, and what is more, are so lively and confident as to show that he spoke from experience as well as reason. As few possessed a mind like his, so few have enjoyed so largely the double advantage of contemplating mankind in solitude and society, or united in so eminent a degree the active and contemplative life. The nature of his work precludes him in a great measure from drawing particular human characters; but we may find proofs of his power in this respect, in the peculiar propriety of the speeches uttered by some of the most remarkable of his departed spirits. We refer as striking examples to those of Capaneus and Vanni Fucci in the fourteenth and twenty-fifth cantos of the Inferno. We would rely still more on his occasional reflections, but above all, on his vehement and eloquent invectives, as proofs of his knowledge of the hearts of men and his power of communicating it to others. He possessed all that acute

and discriminating satire so necessary to give effect to the observations of the most profound genius on the endless variety of human error. Where shall we find it exercised with a greater union of ingenuity and earnestness than in his address to the Popes in the nineteenth Inferno, the observations on Italy and more particularly on Florence in the sixth Purgatory (so highly extolled by Sismondi) and the contrast between the apostles and cardinals in the twenty-first Paradise?

To natural powers, so great in number, so various in kind, so eminent in degree, to the highest proficiency in "the proper study of mankind," Dante united an extraordinary share of classical learning, and a freedom in that age no less extraordinary from classical pedantry. His work often displays his obligations to his predecessors, but always in a manner which diminishes nothing of his own credit; sometimes by beautiful allusions, sometimes by improvements on their ideas, which show a genius equal at least to theirs; — but never by tediously quoting or servilely imitating. He acknowledges in express terms the advantages he has derived from the perusal of their works. To Virgil, in particular,

he attributes the style on which he rests his own reputation.

> "Glory and light of all the tuneful train,
> May it avail me that I long with zeal
> Have sought thy volume and with love immense
> Have conned it o'er. My master thou and guide,
> Thou he, from whom alone I have derived
> That style which for its beauty into fame
> Exalts me." — *Cary, Inf.* c. 1.

Yet his work is so little a copy of the Eneid, that the merits of his thoughts and language, even when of the same general nature as those of his master, are varied from them by strong and original characteristics; and his defects are precisely those, from which Virgil is of all poets most exempt. Does not the example of Dante serve to show that the deep study and warm admiration of the classics produces a servile imitation of them only in men of inferior understanding or perverted taste, — that an author of a great and properly cultivated mind will and must be original, — that they will assist and not encumber his genius, and that he will read them rather to avoid than repeat what has been said before? The purity of Dante's language is suf-

ficiently proved by the circumstance, that in a poem of 13,000 lines there are not more than two or three hundred obsolete words. For clear and majestic conciseness of style he was probably the model, and we believe his own countrymen think an unequalled one, to all the distinguished poets of Italy. We could speak highly from experience of the effect produced by the harmony of his work, notwithstanding its foreign language and novel measure, but will not dwell on points so obvious to the senses of every reader. Dante's production exhibits that union of mental and moral excellence too rare in the works of poets. Others have said that if their writings are licentious, their lives were chaste. We think that as far as respects society the offence would be much lighter, and the apology much more sufficient, could they say, as Dante might do, that if their lives were faulty, their verses are pure. In the Divine Comedy, as in the Jerusalem Delivered, there is not a single licentious passage. Its moral tendency is evident in every line. Its pictures of rewarded virtue are of the most animating nature, and it exhibits vice in the most discouraging situations, detected and punished, tortured in hopeless mis-

ery, or forgiven only after rigorous chastisement and bitter remorse. Yet his morality was pure without austerity, for how severely does he censure those who give way to causeless melancholy;—

"——— Man can do violence
To himself and his own blessings, and for this,
He in the infernal world must aye deplore
With unavailing penitence his crime,
Whoe'er deprives himself of life and light,
In reckless lavishment his talent wastes,
Or sorrows there, where he should dwell in joy."

Cary, Inf. c. 11.

Not satisfied with pursuing his end merely by directing our attention to the offences of others, he does not scruple to unveil his own. We not only accompany him in his travels and listen to his precepts, but are the confidants of his errors. Few authors have excited an interest so deep for the characters of their heroes, as that with which Dante has inspired us for his own. He possesses a power, partly resulting from the varied excellences which we have attempted to point out, and partly from a certain something, which we confess ourselves unable to describe, of producing in his readers the most undivided and un-

wearied attention. Even in the dryest passages we are impelled to hurry on, but never induced to desist. We need say but little of a poem possessing a merit like this; and instead of enforcing any longer Dante's claims to our attention, we have only to advise our readers to overcome the difficulty at first presented by the language, and they will enforce themselves.

Those of our own poets whom Dante most resembles are Shakspeare, Milton, and Cowper. With Shakspeare he was the poet of nature, with Milton that of the invisible world, with Cowper that of Christian morality. He reminds us sometimes of Shakspeare, by his insight into the human heart in the highest and humblest situations, by his beautiful allusions to the works of nature, and his power of presenting a crowd of ideas in a single word. His similarity to Cowper appears more frequently in the strain of his moral sentiment, now lofty and now tender, in the indignant satire of his reflections and harangues, and the uniform direction of it where it is best deserved. Milton resembles him so much more generally and strongly than any other English poet, that we shall conclude by a slight sketch of some of their principal points of

likeness and contrast. Were other evidence wanting, the bare perusal of the two poems proves that Milton has largely imitated Dante. It is to Dante that the credit is due for the bold and novel sublimity of the general plan of both works, for which English critics, from a want either of knowledge or of candor, have combined in extolling their own countryman. It was Dante that first drew aside the starry curtain which surrounds us, and created regions worthy the sublime but mysterious ideas which Christianity had given us of the invisible world.

By the time in which Milton has chosen to place the action of Paradise Lost, he has precluded himself from an advantage of which Dante well knew how to estimate the value. Milton has selected a period when the pages of history were a blank, and the realms of death a void, and his scenes of happiness and woe are destitute of the spirits so interesting above all others to mankind, — those of their departed fathers. The Paradise Lost, like the Divine Comedy, opens with a view of Hell, but Milton's description of punishments consists altogether in a few general, though beautiful passages, and its effects on the mind and heart are far feebler than

those of Dante's narration. This possesses all the merits of Milton's, and adds to them a degree of copiousness and distinctness, which produces an impression both more violent and lasting. Of all the ingenious variety of Dante's punishments, Milton scarcely employs any, but those of darkness and fire; but his fire is less intense, and his darkness less deep. Dante's hell is a terrific dungeon; every thing within it is made subservient solely to the purposes of torture; — Milton's, a world diversified by many of the features, and stored with all the treasures of our own. Hence, instead of the shuddering horror which overpowers the whole soul at the view of Dante's representations, we contemplate the situation of Milton's demons with an undisturbed and not unpleasing pensiveness. When we see them sitting in quiet consultation on the jewelled thrones of Pandemonium, repeating like the heroes in Virgil's Elysium their military exercises, employing themselves in retirement on those metaphysical perplexities so pleasing to some of the best of our own race, or listening to music of celestial origin, we feel little inclined to dispute the opinion of Belial, that their situation might be altered greatly for the worse, or

ridicule the hope of Mammon, that time and custom might render it more than tolerable. Dante's description of the prince of hell, as well as his kingdom, short as it is, is far more appropriate than Milton's. The Lucifer of the Inferno evinces his torture by speechless anguish, and his disposition by the most fiendlike actions. The poet has divested him of all that could excite even a doubtful admiration; and if he has left him any thing of his former grandeur, it is only to increase our terror. He recalls to us his ancient splendor only to render him still more detestable. —

> " ——— If he were beautiful
> As he is hideous now, and yet did dare
> To scowl upon his Maker, well from him
> Might all our misery flow."

How often and how justly has Milton been censured for giving so frequently to Satan's character the semblance at least of heroism. If there is all that we abhor, there is much that we admire. Such is human nature that we cannot but respect the dignity with which he fills the throne even of hell, the readiness he constantly

displays to be foremost to act and suffer for the advantage of his community, the lofty spirit which enables him to feel or to feign a hope in the most desperate circumstances. When he verifies his promises to his subjects by his journey to the newly created world, we contemplate with admiration his bold and novel enterprise, detestable as was its object and ruinous as were its effects. We are willing to excuse him from any imputation of meanness in the various disguises he assumes after reaching the sphere of day, for we look upon them as stratagems allowed by the customs of every species of warfare. When they are detected and exposed, we are strongly inclined to praise the courage, with which he singly confronts Gabriel at the head of legions of angels. Scarcely any part of Paradise Lost exceeds in poetical merit his account of his motives, condition, and designs, contained in his address to the Sun; but does its perusal inspire us with the unmingled detestation due to the great adversary of our race and our Maker? This speech has been praised as containing no ideas derogatory to the Deity. His perfections are indeed stated justly, but this very circum-

stance greatly disarms our indignation against an adversary who could acknowledge them so fairly. How are we inclined to forget Satan's malignity, when we find him displaying, with the most unsparing justice, his own ingratitude, disclosing the real feelings excited by the mistaken admiration of his associates, half resolved to seek pardon by submission, and deterred from it by a prevailing frailty of our own, — the dread of shame, and by a rational belief that his repentance could be but transient. It is only after being obliged to bid farewell to hope, that he forms the resolution of divesting himself of remorse, of placing his sole good in evil, and of achieving the destruction of unoffending man. He preserves everywhere the same gloomy greatness; he always elicits our pity and commands our respect in the character of an "Arch Angel ruined." He may well be compared to the Sun in a partial eclipse, shedding everywhere around him a light faded and solemn, but by no means terrific or baleful.

If we follow Milton to the celestial regions, we shall find that he was largely indebted to Dante for particular passages, as well as for the

general plan of his heaven. In his account of the celestial hosts, he has followed him much less closely. Dante has not attempted in his Paradise the delineation of any particular angelic characters. His seraphs are not like Milton's, — images of men, — they are presented to us in a thousand varieties of form and degrees of distinctness. If his Paradise is destitute of any thing similar to the lively and well-discriminated characters of Michael, Abdiel, and Raphael, it is also free from the celestial battles and their concomitant absurdities, which fill the sixth book of Paradise Lost. Milton's descriptions of the Deity have a radical defect, which we think places them far below Dante's. An equal proportion of both poems is occupied by tedious metaphysical subtilties, but those of Dante are limited to inferior spirits, while those of Milton are appropriated to their sovereign. The Creator in Paradise Lost, explains his designs, justifies his proceedings and expresses his feelings, not always in the most dignified language. We grant that a part of these difficulties necessarily resulted from Milton's idea of giving us clearer and more definite conceptions of the Divinity;

but we think the main error lies in the project itself. He has committed a fault similar to that of those Italian painters, who have represented the Eternal Father under a visible image. Every one who has seen such pictures, will bear witness to their tendency to narrow and lower our ideas. To give to the Deity an earthly language, is an attempt nearly as perilous as to invest him with an earthly form. When he is made a definite object of perception to any of our senses, our thoughts lose in sublimity more than they gain in distinctness. The Supreme Being of Dante is rather a Power than a person; he is represented as pervading the "whole ocean of existence;" he is described in no other manner than by the most distant allusion; we see his attributes only in his works, and hear his commands only through his ministers; he everywhere impresses us with that mysterious sublimity so appropriate to our most natural and noble ideas of an infinite being. If we except a few fine passages, Milton's peculiar excellence lies in his descriptions of the scenery and inhabitants of Eden. Every touch of his native earth seems to renew his vigor; it is here that he ex-

cels not only Dante, but every other poet. Dante's Eden, — *Paradiso Terrestre*, — has little terrestrial except the name. All things in it are allegorical, and we cannot but perceive that they are so. The soil is watered by rivers of a magic virtue, the atmosphere filled with supernatural splendor, we are surrounded by airy visions, and find the whole uninteresting in proportion as it is unearthly. Above all, it is destitute of the latest and highest charm of the Eden we have been accustomed to contemplate, — human love. Hence, Dante's description excites sensations far less lively and touching than those resulting from the perusal of Milton's, and as there is nothing to recall them in the world around us, their hold on the memory is comparatively transient.

> "Thus in the sun-thaw is the snow unsealed,
> Thus in the winds on flitting leaves was lost
> The Sybil's sentence." — *Cary, Par.* 33.

We find in Milton's Paradise all the natural beauties of our own earthly regions, in their highest excellence and most boundless variety we breathe an atmosphere as pure as Dante's,

but more substantial, and feel that we are roaming through a portion of our native home. Instead of the refined, vague, and unintelligible affection of Dante for Beatrice, Milton presents us with the union of the hearts of our first parents in their orisons, labors, and relaxations, developing with equal simplicity and acuteness the mixed nature of that passion, which can be imagined and may be felt by every one, — displaying all that is intellectual, without obscurity, and all that is sensual, without grossness. Dante is the poet of our hours of sober contemplation. When we would escape for a season from the vexations of life, when we would relinquish awhile its pleasures and labors that we may resume them with renovated interest and unclouded judgment, we may accompany Dante through regions far beyond the sphere of all earthly objects and feelings. Milton's description merely of the inanimate and irrational charms of Paradise will render his memory as lasting as the beauty of rural scenery; and his name could scarcely be better known, or more certainly transmitted, were it engraved on every rock and inscribed on every flower. But he has fixed it far more deeply in human hearts, by his description

of the passion which so generally sways them; and his Eden must interest all but the few, who can contemplate with insensibility, not only the charms of nature, but the happiness of domestic life.

ESSAY ON DEMOSTHENES.

ESSAY ON DEMOSTHENES.*

By the great majority of the literary world, from his own time to the present, Demosthenes has been considered as unsurpassed, if not unequalled in eloquence. While, however, there has been so little difference of opinion respecting the degree of his merit, the peculiar nature of it seems to be, at least in this country, very imperfectly understood. Our knowledge of the character of his oratory rests principally on secondary evidence. With Cicero, American students are, comparatively, well acquainted. Their acquaintance with him in early youth, though short and compulsory, is sufficient to give them some general impressions respecting his distinguishing characteristics, and what is of more

* From the North American Review of January, 1826.

consequence, to facilitate a more thorough and general perusal of his works in maturer years. Demosthenes is removed one step further from our reach, by the language in which he writes; and his concise and idiomatic phraseology is so embarrassing to an inexperienced student, as to leave him little leisure to observe and relish the beauties of his author, till after repeated perusals. Few among us have the disposition, or the leisure, to read Demosthenes in the original. He has indeed been ably translated by Leland, but we may observe of translations of ancient authors, what has been remarked of engravings of fine buildings, that they seldom become objects of interest, till after the originals are generally known and studied. We judge of Demosthenes, therefore, from certain vague remarks respecting the fire, the boldness, and the magnificence of his speeches, and the errors into which such language is apt to lead us, are strengthened by an impression, which generally prevails respecting the oratory of the ancients. It is often said that modern orators speak to the reason, ancient orators spoke to the passions, a remark which, if founded in truth, is susceptible of great qualification. From the rank which De-

mosthenes held in the opinion of all ancient critics, and more particularly in that of his great competitor Cicero, we naturally expect to find what we consider to be the peculiar features of Grecian and Roman eloquence, displayed in the greatest force and abundance in his works. We look for extravagant declamation, for perpetual appeals to the feelings, for a crowd of similes and metaphors; in short, for a style bearing a greater resemblance to the Irish, than to any other modern oratory, and far too bold to be adopted with propriety in a modern assembly.

To those who are conversant with the writings of this orator, we need not say that the opinions, which we have just noticed, are the very reverse of the truth; to those who are not, we shall offer a few general remarks on his real merit. The most prominent feature in his orations, as has been justly remarked, is argument. He never declaims, till he has first reasoned; he seems to disdain to inflame our passions, till he has overpowered our understanding. Few authors can bear a comparison with him in the originality and ingenuity of his arguments, in their close connexion with the point proposed and with each other; in the succinctness, perspi-

cuity, and energy with which they are stated; in the sagacity and *generalship*, if the term may be allowed, with which he directs his force to those points where his adversary is most vulnerable, and himself most powerful; in all those qualities, in short, which constitute a powerful and accomplished logician. But though an acute and close, he is by no means a dry and cold reasoner; he bears no resemblance to those, who state their sentiments with the calmness, as well as the precision of mathematical demonstration. His argument seems to flow from his heart, as well as his intellect, and is equally impassioned with the declamation of other orators. His declamation, on the other hand, has much of the closeness and terseness, which we find displayed in the ablest arguments. We perceive in it nothing vague or extravagant, nothing florid or redundant, nothing strained or ostentatious; it always seems to enforce and illustrate, as well as to ornament, the arguments to which it refers, and appears to be introduced not only naturally but necessarily. It is scarcely possible, however, to divide the speeches of Demosthenes, like those of most other orators, into argumentative and declamatory passages. Logic

and rhetoric are blended together, from the beginning to the end; the speaker, while always clear and profound, is always rapid and impassioned. The vivid feeling, displayed at intervals by other orators, bursts forth in Demosthenes with every sentence. We are forcibly reminded of the description of lightning in Homer:—

> "By turns one flash succeeds, as one expires,
> And Heaven flames thick with momentary fires."

Were we called upon to state, what more than any thing else distinguished Demosthenes from all other orators, we should answer, his constant and complete forgetfulness of himself in his subject. His object, in his most celebrated orations, (with the exception of that on the Crown,) was to thwart and overthrow the ambitious projects of Philip of Macedon, to rouse his countrymen to a course of conduct worthy of themselves and their illustrious ancestry. That Philip was aiming at the sovereignty of Greece, that he feared and hated the Athenians, as the irreconcilable opponents to his schemes of aggrandizement, "that he was hostile to the city of Athens, to every thing which it contained, to the very ground on which it stood, but to nothing so

much as its free government," these were the ideas, which seemed to penetrate and absorb the very soul of Demosthenes, and which he put forth all his strength in impressing on the minds of his hearers. His exordium, though highly finished, is generally brief; he throws himself into the midst of his subject, and seems to have neither time nor thought for any thing besides. To gain the assent, and not the applause of the audience, is his single object; his aim seems to be to direct the councils of Athens, utterly regardless of the credit which success may reflect on himself, and he appears to think as little of the skill which he shall display as an orator, as he, who is fighting for his life, thinks of the grace which he shall exhibit in the management of his weapons.

When we consider, that it is the well-known property of this enthusiastic sincerity to communicate itself from the speaker to his audience, that connected even with moderate abilities it seldom fails to command a respectful attention, that it is of itself often sufficient to give a temporary interest to the most airy extravagance, it requires little reflection to perceive what effects it must produce, when united with the talents

of Demosthenes. By no author is he excelled in the power of engaging and riveting our attention. We feel ourselves in the grasp of a giant, and are hurried along in the course of his argument with unceasing and breathless interest. While, however, we dwell thus forcibly on the entire devotion of Demosthenes to his great purpose, we would not be understood to imply, that his orations are devoid of all remarks of general application. He looks intensely on his subject, but it is with the eye of a consummate statesman; his remarks centre in a single point, but they are drawn from a wide circumference. Almost every one of his speeches abounds in maxims of the most profound kind, and the most universal interest, not formally ushered forth in the garb of philosophy, but, like every thing which he utters, springing naturally from his subject, and bearing strongly upon it. That the mind soon loses its dignity if given up to low and grovelling pursuits; that it is the leading duty of a true patriot never to fear responsibility; that no community can ever be great, if it suffer its conduct to be entirely determined by external circumstances; that it is for him who has received benefits to cherish them in his memory

while the giver should be the first to forget them; these, and numerous other political and moral truths of equal moment, are all enforced with the greatest clearness and vigor by Demosthenes. We consider him, in short, as the most striking illustration of the rule subsequently laid down by Horace, in the trite passage, "ars est celare artem." His eloquence always strikes us, as the true eloquence of nature, the language of a strong mind under high excitement.

But it is not our intention to attempt a complete, still less a technical description of his various merits, and we shall merely present our readers with a few specimens of his orations, as they appear in an English dress, intermingled with such remarks as naturally suggest themselves. We quote from Leland's translation. It is, however, necessary, to make one or two previous observations, lest our readers should think that our assertions are but feebly warranted by our extracts. The first circumstance to be noticed, is the well-known fact, that Demosthenes is one of the last authors, to whom justice can be done by quotations. His orations are the very reverse of those works, which are marked by striking inequalities and forcible contrasts, by

brilliant passages which can be easily distinguished, and conveniently detached from every thing around them, by occasional beauties which shine out from what is dull or faulty. On the contrary, he everywhere seems animated with a similar, not to say an equal fervor; even in his highest flights he rises gradually, and every part of his speeches is so connected with what precedes and follows, that it cannot be extracted without material injury. The next circumstance, to which we shall advert, is the manifest disadvantage of quoting from a translation. The difficulty of transfusing the spirit of an ancient author into our language is notorious. With Demosthenes this difficulty is greatly increased, by the nature of his style. This is concise, in many places to a fault, and finished with the most exquisite nicety. Every word is apt and significant, and occupies the very place of all others which best belongs to it, and of course nothing can well be altered, transposed, or omitted. To imagine that such an author can be rendered into our language, without the loss of many beauties of phraseology, to say the least, would be to suppose such a similarity of structure between the Greek and English tongues, as

exists between no two languages whatever. Leland's translation is, as before observed, executed on the whole with great ability, and should be in the hands of all, who are debarred from consulting the original. In the important circumstances of a thorough perception of his author's meaning, and an accurate knowledge of the events to which he refers, he has seldom been surpassed. He is also distinguished by great, and when we consider the natural attachment of translators to their authors, we may add, singular and laudable impartiality. He seems to have formed the most just and discriminating opinions of the merits of Demosthenes, and to have imbibed no inconsiderable portion of the spirit of his eloquence. In one respect, however, his translation falls greatly below the Greek, in elegance of phraseology. It contains many expressions, which are now obsolete or trivial; the words are by no means selected and varied with sufficient care, and the style, on the whole, is much more distinguished by strength than by polish. In judging, therefore, of our extracts, we hope our readers will direct their attention to the sentiments, rather than the phraseology. The first passage, which we shall

select, is the comparison in the second Olynthiac between the Athenians of the time of Demosthenes, and their illustrious ancestors.

"These our ancestors, therefore, whom the orators never courted, never treated with that indulgence with which you are flattered, held the sovereignty of Greece, with general consent, five and forty years; deposited above ten thousand talents in our public treasury; kept the king of this country in that subjection, which a barbarian owes to Greeks; erected monuments of many and illustrious actions, which they themselves achieved, by land and sea; in a word, are the only persons who have transmitted to posterity such glory as is superior to envy. Thus great do they appear in the affairs of Greece. Let us now view them within the city, both in their public and private conduct. And, first, the edifices which their administrations have given us, their decorations of our temples, and the offerings deposited by them, are so numerous and so magnificent, that all the efforts of posterity cannot exceed them. Then, in private life, so exemplary was their moderation, their adherence to the ancient manners so scrupulously exact, that if any of you ever discovered the house of Aristides, or Miltiades, or any of the illustrious men of those times, he must know that it was not distinguished by the least extraordinary splendor. For they did not so conduct the public business as to aggrandize themselves; their sole great object was to exalt the state. And thus by their faithful attachment to Greece, by their piety to the gods, and by that equality which they maintained among themselves, they were raised (and no wonder) to the summit of prosperity."

This is in many respects a highly characteristic passage. It affords, in the first place, a singular instance of the indifference to mere oratorical display, which we have already mentioned as a striking quality of Demosthenes. What tempting opportunities are here disregarded. How might he have displayed those powerful talents of narration and description, which he has proved so fully in his oration on the Crown. With what force and effect might he have dwelt on those victories, which have furnished themes for the efforts of so many orators and poets, from the time when they were won to the present age. With what graphic touches might he have described those glorious monuments of Grecian art, which are even now the wonder and the study of the civilized world. Far different was his course. The whole history of Athens, from the days of Miltiades to those of Pericles, of her power, her conquests, her trophies, her wealth, her architecture, is comprised in a few brief sentences. It was his design not to raise his own fame as an orator, but to waken his countrymen from their fatal lethargy, to shame them into a more dignified and efficient course of conduct, by reminding them, in simple

and affecting terms, of the height, whence they had degenerated. He chose, therefore, merely to elevate and fire their minds, by a few masterly touches, and then to deliver them over to their own reflections.

The next remarkable feature of this extract, which we shall notice, is the exemplary boldness with which the author reproves the follies of his countrymen. It is pleasing to reflect that the ascendency, which Demosthenes acquired and maintained over the "fierce democracy of Athens," was in no degree purchased by a mean compliance with their humors, or a timid forbearance towards their faults and follies. This passage is far from a singular instance in which he displays a sincerity, which the most conscientious lover of strict and abstract truth would deem worthy of high applause. His orations are full of the most pointed and caustic censures of the levity and indifference of his countrymen, in their most momentous concerns. He calls them, for instance, "a helpless rabble, without conduct, without property, without arms, without order, without unanimity;" he declares, "that no one has the least respect for their decrees, and, finally, that their constitution is sub-

verted." Language like this, one would think, must be odious in any country, and the mixture of truth which it contained, when applied to the Athenians, would, we apprehend, produce any other effect than that of rendering it more palatable. If we inquire why it was so patiently heard, from the lips of Demosthenes, we may find a sufficient reason in the skill and judgment, with which it is uniformly employed. His censures evidently spring from the purest patriotism, and are uttered not merely to gratify his own feelings, but for a benevolent and practicable object. His reproofs are constantly followed by exhortations and encouragement, and while he condemns, with the most unsparing acrimony, the degeneracy of the Athenians, he never fails to prove that if they will be themselves, all may yet be retrieved. In this respect, to say nothing of any other, we think the orations of Demosthenes a model, which cannot be too highly recommended to politicians of the present day. We trust, indeed, the time is yet distant, when a boldness like his, will be viewed by the citizens of this country, as a crime. In vain shall we boast of the liberty of expressing our thoughts, which is secured by our constitutions and laws,

if it can only be exercised under the iron sceptre of an illiberal and jealous public opinion.

Our second extract is from the third Philippic, and requires no preface.

"And now what is the cause of all this? (for there must be some cause, some good reason to be assigned, why the Greeks were once so jealous of their liberty, and are now ready to submit to slavery). It is this, Athenians! Formerly, men's minds were animated with that which they now feel no longer, which conquered all the opulence of Persia, maintained the freedom of Greece, and triumphed over the powers of sea and land; but now that it is lost, universal ruin and confusion overspread the face of Greece. What is this? Nothing subtle or mysterious; nothing more than a unanimous abhorrence of all those who accepted bribes from princes, prompted by the ambition of subduing, or the base intent of corrupting Greece. To be guilty of such practices, was accounted a crime of the blackest kind; a crime which called for all the severity of public justice; no petitioning for mercy, no pardon was allowed, so that neither orator nor general could sell those favorable conjunctures, with which fortune oftentimes assists the supine against the vigilant, and renders men utterly regardless of their interests, superior to those who exert their utmost efforts; nor were mutual confidence among ourselves, distrust of tyrants and barbarians, and such like noble principles, subject to the power of gold. But now are all these exposed to sale, as in a public mart; and in exchange, such things have been introduced, as have affected the safety, the very vitals of Greece. What are

these? Envy, when a man hath received a bribe; laughter, if he confess it; pardon, if he be convicted; resentment, at his being accused; and all the other appendages of corruption. For, as to naval power, troops, revenues, and all kinds of preparations, every thing that is esteemed the strength of a state, we are now much better, and more amply provided, than formerly, but they have lost all their force, all their efficacy, all their value, by means of these traffickers."

We pass on from the shorter speeches of Demosthenes, to that masterpiece of Grecian eloquence, the oration on the Crown. This is distinguished from the rest, not only by its superior excellence, but by its freedom from their two most important, if not their only defects. The first of these is the coolness generally displayed in the perorations. Demosthenes complied, in this respect, with the rules of Grecian rhetoric; and it cannot but be greatly regretted, that in so important a particular he should have suffered Art to prevail over Nature. The other fault, to which we refer, is his extreme conciseness. Whether, indeed, this be a fault, seems to be more than doubtful to the ablest critics. It is certainly an error on the right side, and of singularly rare occurrence. It is ascribed by Leland, to the well-known character of the Athe-

nians, a people remarkable for their quickness of perception, to whom the slightest intimation was a sufficient clue to the orator's sentiments. Another reason may be found in the fact, that the subjects on which Demosthenes spoke had in general been previously discussed by other orators, and fully understood, in all their relations, by the audience. The assemblies which he addressed were, besides, engaged most deeply in the business before them, and their minds wound up to a degree of interest, which suffered not a single remark to pass unnoticed or unapplied. Still, under all these qualifications, Demosthenes has carried the virtue of brevity to an extreme; and, in this respect, he would be a very unsafe model for the imitation of a public speaker. His shorter orations exact even from a reader, the most wakeful and unremitted attention, and it is scarcely necessary to add, that much of the force and beauty of the finest sentiments, if expressed in a similar style, would be lost by an audience.

In the oration on the Crown, Demosthenes is, compared merely with himself, unusually diffuse. He was probably led to this course by the peculiar circumstances of his situation. His whole

conduct was upon trial. He was attacked by an orator, who yielded only to himself in skill and celebrity, and forced to answer to numerous specific charges, which could be refuted only in detail, and at great length, and, as he himself observes, he could only vindicate his own character by a complete history of his public life. This oration is, accordingly, five or six times as long as any of the Philippics, and is distinguished by every species of composition, by argument, by narration, by invective, direct and ironical, by comparison, by metaphor, by apostrophe, by figures, both of thought and language, of all descriptions. Our limits will confine us to a very few extracts. The first is an example of the bitter personal reproaches, which Demosthenes heaps on his adversary. They are certainly such as neither would nor should be permitted, by the rules of any deliberative assembly at the present day. They were provoked, however, on the part of Æschines, by invectives of equal virulence and ability; and the contest between the two orators was in fact a trial of character. We may also remark, that the reproaches uttered by Demosthenes, both in this and other passages, violent as they are, contain nothing which, if

true, could not be decently told, and that they are free from that disgusting vulgarity, which disfigures those of Cicero against Piso and Antony. The lines in italics allude to the charge of cowardice, which Æschines had repeated several times in the course of his oration.

"When you had obtained your enrolment among our citizens, by what means I shall not mention, but when you had obtained it, you instantly chose out the most honorable of employments, that of under scrivener and assistant to the lowest of our public officers. And, when you retired from this station, where you had been guilty of all those practices you charge on others, you were careful not to disgrace any of the past actions of your life. No, by the powers! — You hired yourself to Simmichus and Socrates, those deep groaning tragedies, as they were called, and acted third characters. You pillaged the grounds of other men for figs, grapes, and olives, like a fruiterer; which cost you more blows than even your playing, which was in effect playing for your life; for there was an implacable, irreconcilable war declared between you and the spectators; *whose stripes you felt so often and so severely, that you may well deride those as cowards, who are unexperienced in such perils.* — But I shall not dwell on such particulars as may be imputed to his poverty. My objections shall be confined to his principles. Such were the measures you adopted in your public conduct, (for you at last conceived the bold design of engaging in affairs of state,) that while your country prospered, you led a life of trepidation and dismay,

expecting every moment the stroke due to those iniquities which stung your conscience; when your fellow-citizens were unfortunate, then were you distinguished by a peculiar confidence; and the man who assumes this confidence, when thousands of his countrymen have perished, what should he justly suffer from those who are left alive? And here I might produce many other particulars of his character. But I suppress them. For I am not to exhaust the odious subject of his scandalous actions. I am confined to those which it may not be indecent to repeat. Take, then, the whole course of your life, Æschines, and of mine; compare them without heat or acrimony. You attended on your scholars; I was myself a scholar. You served in the initiations; I was initiated. You were a performer in our public entertainments; I was the director. You took notes of speeches; I was a speaker. You were an underplayer; I was a spectator. You failed in your part; I hissed you. Your public conduct was devoted to our enemies; mine to my country."

The next passage which we select, is a rapid and forcible enumeration of the various and important measures, which had been adopted for the security of the state. To say nothing of its other beauties, the manner in which the orator introduces himself in the third person is singularly happy.

"Consider; what was the part of a faithful citizen? Of a a prudent, an active, and an honest minister? Was he not

to secure Eubœa as our defence against all attacks by sea? Was he not to make Bœotia our barrier on the midland side? the cities bordering on Peloponnesus our bulwark, on that quarter? Was he not to attend, with due precaution, to the importation of corn, that this trade might be protected through all its progress up to our very harbor? Was he not to cover those districts which we commanded, by seasonable detachments as the Proconesus, the Chersonesus, and Tenedos? To exert himself in the assembly for this purpose, while, with equal zeal, he labored to gain others to interest and alliance, as Byzantium, Abydos, and Eubœa? Was he not to cut off the best and most important resources of our enemies, and to supply those in which our country was defective? And all this you gained by my counsels and my administration. Such counsels, and such an administration, as must appear, upon a fair and equitable view, the result of strict integrity; such as left no favorable juncture unimproved, through ignorance or treachery; such as ever had their due effects, as far as the judgment and abilities of one man could prove effectual. But if some superior being, if the misconduct of generals, if the iniquity of your traitors, or if all these together, broke in upon us, and at length involved us in one general devastation, how is DEMOSTHENES to be blamed? Had there been a single man in each Grecian state to act the same part, which I supported in this city; nay, had but one such man been found in Thessaly, and one in Arcadia, actuated by my principles, not a single Greek, either beyond or on this side Thermopylæ, could have experienced the misfortunes of this day. All had then been free and independent, in perfect tranquillity, security, and

happiness, uncontrolled in their several communities, by any foreign power, and filled with gratitude to you and to your state, the authors of these blessings, so extensive and so precious. And all this by my means."

The last quotation which we shall make, is a part of the oration on the Crown, concluding with his apostrophe to the departed heroes of Athens. Leland's version of this passage is uncommonly elegant and happy. The principal truth, which Demosthenes here labors to enforce, is no other, than that success is not the necessary result of human exertions, however wise, but the gift of heaven. This would seem to many not only an indisputable, but a commonplace maxim of morality, though no one will deny the singular ability with which it is amplified and illustrated. It is necessary, therefore, to refer to the argument of Æschines. Availing himself of the disasters, which had befallen Athens during the administration of Demosthenes, this orator accused him with the greatest vehemence, as the author of all her calamities. He represents him as the evil genius of his country, the accursed thing which had drawn down upon her the vengeance of heaven; the ill-starred wretch, whose disastrous destiny had outweighed

and controlled her better fortunes. These charges, which we believe would not be without their effect on the feelings even of a modern audience, under similar circumstances, must have seemed far more credible to a Pagan assembly, who were prone to consider misfortune, not only as a presumptive proof of misconduct, but as a sure indication of the wrath of the gods. Demosthenes, in reply, after urging that neither he nor any other statesman could be required to possess the gift of prophecy; after showing that the measures, which he pursued, were those of a wise and patriotic minister, and were admitted so to be, by the silent acquiescence of Æschines himself, at the time of their adoption, proceeds as follows.

"But, since he hath insisted so much upon the event, I shall hazard a bold assertion. But, in the name of heaven, let it not be deemed extravagant; let it be weighed with candor. I say, then, that had we all known what fortune was to attend our efforts; had we all foreseen the final issue; had you foretold it, Æschines, (you whose voice was never heard,) yet, even in such a case, must this city have pursued the very same conduct, if she had retained a thought of glory, of her ancestors, or of future times. For, thus, she could only have been deemed unfortunate in her attempts; and misfortunes are the lot of all men, whenever it may please heaven to in-

flict them. But if that state, which once claimed the first rank in Greece, had resigned this rank, in time of danger, she had incurred the censure of betraying the whole nation to the enemy. If we had indeed given up those points without one blow, for which our fathers encountered every peril, who would not have spurned you with scorn? *You, the author of such conduct,* not the state, or me? In the name of heaven, say with what face could we have met those foreigners, who sometimes visit us, if such scandalous supineness on our part had brought affairs to their present situation? If Philip had been chosen general of the Grecian army, and some other state had drawn the sword against this insidious nomination, and fought the battle, unassisted by the Athenians, that people who, in ancient times, never preferred inglorious security to honorable danger? What part of Greece, what part of the barbarian world, has not heard, that the Thebans, in their period of success, that the Lacedemonians, whose power was older and more extensive, that the king of Persia would have cheerfully and joyfully consented, that this state should enjoy her own dominions, together with an accession of territory ample as her wishes, upon this condition, that she should receive law, and suffer another state to preside in Greece? But, to Athenians, this was a condition unbecoming their descent, intolerable to their spirit, repugnant to their nature. Athens never was once known to live in a slavish, though a secure obedience to unjust and arbitrary power. No; our whole history is one series of noble contests for preëminence, the whole period of our existence hath been spent in braving dangers, for the sake of glory and renown. And so highly do you esteem such conduct, so con-

sonant to the Athenian character, that those of your ancestors, who were most distinguished in the pursuit of it, are ever the most favorite objects of your praise. And with reason. For who can reflect without astonishment upon the magnanimity of those men, who resigned their lands, gave up their city, and embarked in their ships, to avoid the odious state of subjection? Who chose Themistocles, the adviser of this conduct, to command their forces; and, when Crysilus proposed that they should yield to the terms prescribed, stoned him to death? Nay, the public indignation was not yet allayed. Your very wives inflicted the same vengeance on his wife. For the Athenians of that day looked out for no speaker, no general to procure them a state of prosperous slavery. They had the spirit to reject even life, unless they were allowed to enjoy that life in freedom. For it was a principle fixed deeply in every breast, that man was not born to his parents only, but to his country. And mark the distinction. He who regards himself as born only to his parents, waits in passive submission for the hour of his natural dissolution. He who considers, that he is the child of his country also, is prepared to meet his fate freely, rather than behold that country reduced to vassalage; and thinks those insults and disgraces, which he must meet, in a state enslaved, much more terrible than death. Should I then attempt to assert, that it was I who inspired you with sentiments worthy of your ancestors, I should meet the just resentment of every hearer. No; it is my point to show, that such sentiments are properly your own; that they were the sentiments of my country, long before my days. I claim but my share of merit in having acted on such principles, in every part of

my administration. He, then, who condemns every part of my administration, he who directs you to treat me with severity, as one who hath involved the state in terrors and dangers, while he labors to deprive me of present honor, robs you of the applause of all posterity. For if you now pronounce, that, as my public conduct hath not been right, Ctesiphon must stand condemned, it must be thought that you yourselves have acted wrong, not that you owe your present state to the caprice of fortune. But it cannot be! No, my countrymen! it cannot be that you have acted wrong, in encountering danger bravely, for the liberty and safety of all Greece. No! by those generous souls of ancient times, who were exposed at Marathon! By those who stood arrayed at Platæa! By those who encountered the Persian fleet at Salamis, who fought at Artemisium! By all those illustrious sons of Athens, whose remains lie deposited in the public monuments! all of whom received the same honorable interment from their country; not those only who prevailed, not those only who were victorious. And with reason. What was the part of gallant men they all performed! Their success was such as the Supreme Director of the world dispensed to each."

No writings could, we think, be read to more advantage by the rising orators of our own country, than those of Demosthenes. A thorough study of his concise, manly, and practical eloquence, would do much to correct the two most prominent faults of American oratory. The first of these, is the excessive prolixity, by

which we are most unfortunately contradistinguished from our transatlantic brethren. In our national House of Representatives, for instance, which, composed as it is of our most distinguished politicians, is certainly no unfair specimen of our deliberative assemblies, five or six weeks are spent in debating upon questions, which would be discussed in the Parliament of Great Britain, and well discussed too, in half as many evenings. The best speakers in that country generally find two or three hours at most, amply sufficient for a complete exposition of their arguments, and those eloquent orations of five or six hours, which are so much in fashion at Washington, are almost unknown. There is some appearance, indeed, that this prolixity of our congressional speakers is working its own cure,* and it already begins to be suspected that, in order to convince, it is not indispensably necessary to fatigue. The next fault, to which we allude, is the fondness for unnatural and meretricious ornament, which is occasionally displayed, even by some of our ablest speakers, and which is exhibited, in irrelevant and ostentatious

* This anticipation has been since fulfilled by the adoption of *the one hour rule.*

digressions, in cold and trite similes, and a gay confusion of metaphors, in finical circumlocutions, and a studied avoidance of direct and definite language, and, to speak more generally, in offences of every description against classical simplicity. This fault is by no means confined to our oratory, it infects in some degree every branch of our literature, and must be ascribed in part to circumstances in our condition which can be removed only gradually. A chaste elegance in the art of composition, as in all other arts, is generally the result, in part, of assiduous culture, and consequently the evidence of a high degree of advancement. But we think, that the deficiency of several of our orators in this quality, has been owing materially to the admiration entertained, by so many of our fellow-citizens, for a few faulty models, and more especially for the works of Curran and Phillips. We object to this admiration, not so much because it is extravagant, as because it is undiscriminating. We know that perfect simplicity is compatible with a high degree of ornament, provided it be apt and unforced ornament, and there are certainly passages alike faultless and striking in both these orators, and more especially in the

first. But these great beauties are balanced, not to say outweighed, by faults of equal magnitude, and the contrast, striking as it is, seems to have been strangely overlooked by many of our countrymen.

Misled by some of the most glaring absurdities of these brilliant, but irregular productions, they seem to have essentially mistaken the nature of real eloquence, to have supposed not only that it was something more than plain good-sense, but something at war with it. We know nothing that could be better adapted to correct impressions like these, than the frequent contemplation of the severe beauty of Attic eloquence. But above all, would we recommend the speeches of Demosthenes, as models of practical, *business like* oratory. The present age is a period, when men are *in earnest*, when they seek, even in works of amusement, for something which shall excite intense thought, and call forth their inmost feelings; when they will not endure to hear important subjects treated carelessly or superficially.* We may add, that if this be the character at the present day, of all enlightened

* See Dr. Channing's Sermon at the Ordination of Mr. Gannett.

nations, still, more especially, is it that of our own. All our public institutions, all our private and domestic habits, are calculated to render us emphatically a practical people. Every individual is in some degree a man of business. With us a recluse is almost an unknown being, and the most retired students are drawn from their closets to bear some part in the machinery of active society. Our whole frame of government presupposes, what our admirable systems of early education have enabled us to verify in a great degree, that our community is made up of thinking, reflecting individuals. No feature in the character of the people, at least of the older parts of our country, is more striking than their singular sedateness and gravity. Their very amusements are strongly marked by these characteristics. Their only festival days are those, which are devoted to the celebration of important agricultural, political, religious, or literary ceremonies. Nothing seems to be intended as the mere sport of the passing hour; all is serious and practical. This peculiar gravity of character is daily becoming more prominent, and diffusing itself more widely. It is surely not improbable, that it will eventually give a coloring

to all our intellectual productions, but more especially to our oratory, and that in this country the most popular and successful eloquence will be the grave, manly, argumentative eloquence of which Demosthenes is so splendid an example; which disdains to trifle, which seeks to convince and persuade, not to entertain; which speaks to the reason and the heart, rather than to the fancy; the eloquence of sound thought and deep feeling. The works of Demosthenes, to say nothing of the other illustrious orators of Greece, are alone sufficient to render the language in which he wrote, worthy of the assiduous study of every well-educated American.

ESSAY ON COLLEGE EDUCATION.

29

ESSAY ON COLLEGE EDUCATION.*

THE Report to the Corporation of Brown University on the subject of changes in the Collegiate System of Education, is understood to be the work of the distinguished President of that institution; and on that account, if on no other, will receive an attentive and respectful consideration by the public. Few men seem to have given greater attention to the subject, and few certainly have had a better opportunity of becoming acquainted with it practically, as well as theoretically. The report is, in many respects, such as might be expected from the author. It is an ingenious and elaborate discussion of the whole subject of college education, as carried into practice in our country, and more particu-

* From the North American Review of January, 1851.

larly in New England. To this topic it is entirely devoted. The author manifests no prejudice, and we presume feels none, against any particular institution; he indulges in no criticisms upon the manner in which any college is conducted; his remarks are upon the system of collegiate education generally, and this point he discusses with the gravity and propriety due to its importance. What is original in this report is expressed in perspicuous and dignified language, such, we trust, as will be imitated by all who may either support or impugn his doctrines.

We cannot extend the same praise to all the quotations, which are somewhat largely introduced. We certainly pay very little respect to such sweeping, and, to say the least, not overcharitable, remarks, as "that the number of pious young men in colleges is less than it was a few years since." Nor do we think that our author's argument is much indebted to his long extracts from the Edinburgh Review. The pleasantry of those passages (or what was so intended) does not strike us either as very elegant, or very happy; and the reasoning, whether it be deemed conclusive or fallacious, is founded on a state of things to which there is little or nothing

parallel in this country. Thorough classical scholars are, we know, very rare, even in our older settlements; but certainly not more rare than popular audiences who cannot speak their mother tongue with a tolerable enunciation, and cannot understand and relish an argument expressed in perspicuous and elegant language.

But our chief concern is with the general purport of this Report. We do not propose formally to reply step by step to the author's positions, though we must of necessity allude in the course of our remarks to many of the most prominent of them, but to offer a few desultory observations on the great question which forms the theme of his argument, and which has been, for some years, a frequent topic of public discussion as well as private conversation.

Is the system of college education now existing in our country one which in the main should be upheld and cherished, or do the intellectual wants of the community require a radical alteration? To do full justice to this question is a task which we have neither the ability, nor the space, to accomplish. But the subject is one which has never failed to interest the community, and which was never more deeply interest-

ing than now. No examination of it, if made with any fairness, can be wholly without advantage. Before proceeding directly to this examination, we beg leave to offer one or two preliminary remarks.

In the first place, we think that very little aid in our investigations is to be derived from the experience of foreign countries. Our college system, though transplanted at first from England, has been very essentially modified in the lapse of two centuries. We have been absolutely forced to omit, as well as to add, in many important particulars; and the present system of college education is widely different from that now existing in any foreign country. In the actual condition of our community, no European system of university education could be practically carried out here, without many substantial variations. It is difficult, moreover, to learn what is the opinion of the most intelligent men of any foreign country, (England for example,) in regard to the system of education there existing. The assertions of anonymous writers, or even of a few well-known writers of high distinction, are far from conclusive evidence on this point. It is easy to find such vouchers on either

side of that question. We feel, therefore, little concerned in determining which party in any such case holds the better opinion; we are, happily, not driven to the dicta of foreign writers, or the experience of foreign communities, as our only or chief sources of light on this extensive and interesting question. They have their value; but it is to our domestic experience, to the history of our own colleges, that we principally look for guidance. That history is fraught with interest and instruction, and we shall be pardoned in devoting a short time to its contemplation, as absolutely necessary to any one who would form any fair judgment of our subject.

For more than threescore and ten years Harvard was the only collegiate seminary in North America. It is a remark of one of the most distinguished ornaments of the honored institution which stands next in succession,* "that Yale College owes to Harvard a debt of obligation, perhaps for her very existence, which she will never be slow to acknowledge. From her, for a series of years, she derived her officers, her modes of instruction, her moral code, and in-

* See Professor Silliman's remarks at the inauguration of President Everett.

ternal discipline." The system of education at all our New England colleges has been all along, and now is, so far as it goes, formed on the model of that of Harvard. Whatever differences may be thought to exist between this seminary and any other of the same class, to the disadvantage of either, no one, we presume, will deny the substantial correctness of this remark. The history, therefore, of education as pursued in Harvard College is the history of our system of college education generally in New England; and it is from a brief sketch of that history, that we can best derive the means of judging of the practical effects of that system.

The foundation of Harvard College by the little colony of Massachusetts Bay, within ten years after its first settlement, has often been the theme of the ablest and most eloquent eulogies; and no wonder. No language can well do justice to the far-reaching sagacity and devoted liberality which led to this noble enterprise. It is not speaking too strongly to say, that it is without a parallel in history; and it would be absolutely impossible to trace out all the benefits, religious and political, as well as literary, which have resulted from it to our commonwealth and

to our common country. What would have been our condition, had the views of our fathers been less elevated, — had they been contented with such provisions for the cause of learning as might have appeared best suited to their actual condition? If some of their public measures were of more importance, (the foundation, for instance, of our system of free schools,) there was not one which was more original and impressive, not one which showed a more comprehensive and disinterested solicitude for the intellectual and moral wants of future generations. We are strongly reminded of the spirit which prompted the obscure and all but nameless Greek colony at Pæstum to erect those massive and lofty temples, which have stood all but unimpaired for thousands of years, and yet stand, the lonely but gigantic monuments of its existence.

The establishment of Harvard College, when we consider the situation of the little colony of Massachusetts Bay at that period, was, both in an intellectual and moral point of view, a not less magnificent conception. It was an attempt to transplant to these untrodden shores, in its full-grown proportions, the highest description of education, which then existed in the most re-

fined communities of the old world, and which had there been the growth of centuries. No other cause than the *religious spirit*, the same spirit which, whether enlightened or misguided, has produced such vast results wherever it has been roused into intense action, could have rendered such a measure an object even of serious contemplation. It was the great purpose of our fathers, in this bold and deep laid project, to preserve and propagate true and unadulterated religion by supplying our pulpits with a succession of wise as well as devout pastors. It was therefore as a place of education for the ministry, that Harvard College was at first chiefly designed, and it was to this profession that a large proportion of its graduates for the first half century devoted themselves.

But at no time was the college, in profession or in practice, a mere theological seminary. The zeal of our fathers, though partaking, of necessity, of the characteristics of the religious feeling of that age, was an enlightened and manly zeal, which sought its ends by the diffusion of knowledge and the promotion of a spirit of inquiry. If, in the words of the excellent Robinson as applied to the great leader of his own

denomination, John Calvin, "they saw not all things," they certainly were not disposed to shut their eyes against farther light. The college, from its very origin, has been administered with a liberality which existed in no seminary of the same description previous to the latter half of the eighteenth century, and which, to say the least, has not been *often* imitated in succeeding times. No confession of faith is imposed by its charter as a qualification for any office of instruction or government, or by any of its successive codes of laws, from that established in 1642 to the present day, as a prerequisite to admission, for a degree, or for college honors, — a liberality which we can better appreciate, when we reflect, that to this day, every candidate for a degree at Oxford or at Cambridge must signify his assent to the doctrines of the Church of England. The spirit of independent thought and free inquiry which was spread abroad through the influence of such a seminary, was the surest corrective for whatever of bigotry and intolerance existed in the minds of its early patrons. The stern and exclusive orthodoxy of the first settlers soon began to give place to a wiser policy and more enlarged charity. The lamentable injustice exer-

cised towards Dunster, for mere errors of opinion, (or what were so deemed,) was not repeated towards his successor Chauncy, who was no less heretical, but who held his office without disturbance or censure till his death; and not an instance is on record of the punishing or molesting of any student on account of his religious tenets.

The systems of instruction established by President Dunster, and varied from time to time by his successors as occasion seemed to require, if considered merely in a literary point of view, appear to breathe the same enlarged and liberal spirit. Nothing more was absolutely required for a bachelor's degree than the ability to construe the Old and New Testaments into Latin. But the course of instruction certainly included all the sciences which were then deemed of importance. The table of Theses of the Commencement of 1642, is preserved by Hutchinson, and is formed of propositions in grammar, rhetoric, logic, ethics, physics, and metaphysics. There is every reason to believe, that these sciences were as well taught by Dunster and Chauncy, both of them distinguished graduates of Cambridge in England, as at either of the

universities of the parent country. It need not be said that the course of education, both in substance and form, was of a highly scholastic, as well as ecclesiastical description. In this respect, however, it only partook of the character of all education then given in the higher seminaries of England and the continent of Europe. How could it possibly be otherwise? The great reformation in the physical and intellectual sciences had scarcely dawned. The year in which the first Commencement of Harvard College was held, was rendered memorable by the death of Galileo, and the birth of Newton The Copernican system was still a heresy in the judgment of the Catholic Church, and a disputed hypothesis in the learned world. The great works of Locke and Newton were not published till nearly the close of the seventeenth century; and the luminaries of the schools were only beginning to fade before the broad light of the Baconian philosophy.

"It was the time, when 'gainst the breaking day
Rebellious night yet strove, and still repined;
For in the East appeared the morning gray,
And yet some lamps in Jove's high palace shined."

But the college was not slow in adopting such improvements in its course of education, as must have been suggested by the mighty changes in the world of science, which marked the close of the seventeenth, and the beginning of the eighteenth century. In the early part of Holyoke's presidency, and probably for some time previous, Locke and Watts were the text-books in intellectual science, Ward in mathematics, (a work greatly resembling the valuable compilation since made by President Webber,) Euclid in Geometry, and Gravesande as translated by Desaguliers, (both of them disciples and warm admirers of Newton,) in Natural Philosophy.

It must be confessed, however, that the amount actually taught in Harvard College, at any period previous to the Revolution, was exceedingly scanty. The text-books just mentioned, constituted all then in use, with the addition of Wollebius's Compend of Theology, Virgil, Cicero's Select Orations and Offices, the Greek Testament, and a little of Homer, and Gordon's Geographical Grammar; — comprising a much smaller amount of knowledge, on the

whole, than is now required for admission. This scanty list continued almost unchanged till the year 1763, and probably several years longer; and with the writing, occasionally, of Latin syllogisms, it formed almost the whole course of college study. It was far from sufficient to occupy the time of the student; and no academy or high school could now hold a respectable rank with so meagre a list of required studies. The truth is, in the words of President Quincy, that the best part of the education at this college, and that for which its students have been everywhere distinguished, was that they were taught, according to the language used by President Mather, "*libere philosophari, et in nullius jurare verba magistri.*" In this branch of study, at least, they were any thing but dull proficients. We find that the right of resisting the supreme magistrate for the preservation of the Commonwealth, was publicly maintained in a thesis at commencement, in 1740, by SAMUEL ADAMS; and one of the candidates for the master's degree in 1736, proposed to call in question the doctrine of the Trinity, which was permitted by the corporation, and only prevented by the interposition of the overseers.

The New England church, though almost universally Calvinistic, soon had, like all other churches, its more orthodox and more liberal party; and the contest between them was fiercely and pertinaciously carried on for more than half a century. The control of the college was then, as it has been since, one of the chief prizes of the contest. In almost every instance after the division had become decided and conspicuous, the liberal party prevailed; and their ascendency seems to have been finally secured by the election of Holyoke, whose long and distinguished presidency extended from the year 1736 to the eve of the American Revolution. When that great crisis approached, the alumni of the college showed, in a still more striking manner, at what school, and in what spirit, they had been educated. They were found manfully doing battle, in many cases in more than a figurative sense, in the cause of liberty. The great majority of the graduates of Harvard, as well as of our other colleges, of whatever profession or calling, were devoted unreservedly to this sacred object. We shall not be suspected of maintaining that this spirit of liberty, this stern determination to resist all tyranny in the beginning and to

the last, was peculiar to the educated men (so called) of our country, or that such sentiments owed their birth or their vigor exclusively to our colleges. But that those seminaries contributed materially, directly and indirectly, and that probably to an extent far greater than can be fully traced, to our emancipation from the power of Great Britain, as well as to the well-ordered and stable liberty which has arisen from the ruins of that power, is what no one, versed in the slightest degree in American history, will pretend to call in question. We know of no terms in which justice has been better done, in the same compass, to the character of our New England colleges in the seventeenth and eighteenth centuries, than those found in Dr. Wayland's Report, page 11, to which we refer our readers.

The next paragraph in the Report is one which, we must confess, we have read with no little surprise. It commences with the two following statements, couched, it will be perceived, in emphatic language, with the slightest possible qualification.

"It ought not here to escape remark, that these colleges were almost wholly without endowment. They were nearly self-supporting institutions."

Now, let it be recollected that until the year 1707, that is, for seventy years from its foundation, Harvard College was the only one in New England. In 1707, Yale College was fairly put in operation; and these two were our only New England colleges till the establishment of Brown University in 1764, and of Dartmouth College in 1769; or, in general terms, Harvard and Yale may be termed the only colleges in New England in full operation, previous to the Revolution. No one, we think, who recollects the history of Harvard during the seventeenth and eighteenth centuries, can assent, for a moment, to the propositions above quoted. It certainly was a material inadvertence, — for to this cause we ascribe the error, — to lay down any such propositions as generally true, in disregard of the striking facts recorded in so many pages of every historian of Harvard College, from Mather to Eliot. These facts can all be found clearly and fully stated, in the valuable work of President Quincy.

Not one of the college edifices standing at the commencement of the Revolution was erected wholly, or in any great degree, at the expense of the college treasury. All of them were monuments of public or private liberality. Every pro-

fessorship then existing was founded, and in a great degree supported, by funds derived from the source last named; and down to the year 1780, the salary of the President from the beginning, and from the year 1750 those of the Professors, also, were paid, in great part, directly from the public chest.* The noble benefactions of the Hollis family, for successive generations, were all bestowed within the same period; and the college was, on the whole, more liberally endowed, — regard being had to the means of the donors, and this consideration, according to reason and Scripture, furnishes the truest standard of liberality, — than any college now existing in our country.

In making these statements, we are not impelled merely by the wish to correct what we conceive to be a grave historical error. Those who peruse the Report before us will find our author's assumption, that before the Revolution our colleges existed and flourished almost without external aid, is made to serve as a basis to a grave charge against our college systems of education at the present day. We are, at any rate,

* Quincy's History, vol. ii. pp. 224–241.

highly gratified in finding that there is no difference of opinion between our author and ourselves, and we think it may be added, no difference of opinion in the public mind generally, as to the benefits derived by New England and by our common country from our colleges as they existed previously to the Revolution. So much as this, we trust, will be collected from the sketch we have given (however brief and imperfect) of the history of education in Harvard University, the forerunner and the model, if not the parent, of all others. So much as this seems, at least, to have been believed and felt by the wise patriots who formed our Massachusetts Constitution in 1780, and commended the university to the especial care of their posterity, in more than one emphatic passage of that instrument, for the reason, as most briefly and comprehensively stated, that "the encouragement of arts and sciences, and all good literature, tends to the honor of God, the advantage of the Christian religion, and the great benefit of this and the other United States of America."

Such, then, without question, were our New England colleges previous to the Revolution. What was actually taught, was, as we have said,

confessedly very little. Those graduates who considered their literary career closed by the conferring of their degree, were certainly satisfied with exceedingly scanty intellectual acquisitions. Of these, as well as of those who failed to learn even the little which they were enjoined to study, there were doubtless many; and the nature of all institutions, not to say of man himself, must be greatly changed, before such results can be precluded. But there must also have been many, who not only fully improved every opportunity offered to them, but who did far more; who caught the inspiration which prevails in every well-ordered place of public education, and in every community of intelligent and emulous young men, and in whose minds their college exercises, few and short as they were, served only to excite an inextinguishable thirst for more extended knowledge.

Has all this changed? Are our colleges now less deserving of the public favor than in time past? Or is the condition of the community so altered that the colleges can no longer exercise the same beneficial influence as formerly, unless their system of education be upturned from its very foundations? We would premise, that in

any reply we may make to these questions, we shall refer more especially to Harvard College, not simply because we are better acquainted with that institution than any other, but for the reasons given in the beginning of this article, and for the further reason that we believe its condition is more frequently and fully disclosed to the public than that of any other college in New England. It is the only one of the colleges, according to Dr. Wayland, which publishes an annual report of the state of its finances and of its general position. It is placed in a densely peopled region, almost within the precincts of a great city, and is closely scrutinized alike by its vigilant opponents and its solicitous friends. If the remark of Alexander Hamilton be correct, that jealousy is often the surest proof of strong attachment, Harvard College must be deeply seated in the affections of a large and intelligent portion of our community. Its supposed merits and demerits stand in bold relief before the public, and are almost daily the subject of public or private discussion. "We work," one of its most distinguished Presidents has said, "in a glass hive." Apparently for these reasons, the course of education existing

in this university, has been selected, not unfairly, by Dr. Wayland as a specimen of our collegiate system generally. As such, we shall all along refer to it. With the complaints made against this institution, in particular, as distinguished from its sister seminaries, we have at present nothing to do.

Were, then, those who were graduated at Harvard before the Revolution better educated on the whole, better fitted to play their respective parts in the great theatre of after-life, than their successors of our time? We are told, and it is the first time we have seen the assertion, that the mind of the student was then suffered to invigorate itself by reflection and reading; and hence, with far less perfect means than are now possessed, it seems to have attained a more manly development. We trust we have given our readers some idea of the amount actually taught at Harvard during our Colonial and Provincial existence. If it be a merit in a seminary of education that the amount of instruction given is small, it is certainly one which our New England colleges possessed in a high degree before the Revolution, and which they could recover now on cheap and easy terms.

But we are told, and public opinion is invoked to ratify the assertion, that the alumni of the college, previous to the Revolution, were greater statesmen, jurists, and divines than their successors; that the average of professional ability among us is declining, etc. It is candidly admitted in immediate connection with these remarks, that we are all, to a considerable extent, *laudatores temporis acti*, the eulogists of the past. There is certainly in this country much in the past to eulogize. We had great men previous to the Revolution, and we have already said that their college education, such as it was, had much to do with their greatness. But that this education was any the better from being incomplete, is something worse than a paradox; and that there were no other circumstances which contributed to the greatness of those distinguished men, or at least facilitated the manifestation of it to their country and the world, is any thing but true. Much of their renown, if not of their intrinsic power, was owing to the great crises which called forth all their talents and all their exertions at the peril of liberty, life, and character. Should such calls now arise, we have no doubt that they would be responded to as

fully and nobly as by the generation of Seventy-six. What specific evidence exists for the assertion that *professional* talent among us is declining, we are at a loss to know. Our author quotes, in this connection, a remark of the Edinburgh Review, "that it would be difficult to find at present, among the most eminent leaders in Westminster Hall, any whose academical course was crowned with honors." If this remark is considered as applicable to New England we think it will meet with many dissentients. We venture to say that no list will be made, by any competent judge, of the leaders of the bar in Boston (we are sure this is not a solitary, and we cannot see why it is not a fair, specimen) which will not be composed in great part of the names of distinguished graduates of some of our colleges. Nor have we seen any evidence offered that our divines and physicians are, on the whole, less able, less learned, or less skilful, than those who have gone before them. How, indeed, should they be? The whole community as a mass, is supposed by no one, to be less intellectual or less educated than formerly. Parishioners, patients, and clients, (and this includes every one, for every one is called upon to act and

to suffer in one at least of these capacities,) are more enlightened than formerly; and it is not to be supposed that they would intrust the care of their health, the adjustment of their controversies, or the ministry of their souls, to less competent agents, or that their standard of competency would be less elevated.

But the question, whether the minds of pupils are less developed and strengthened by a college education now than a century since, can be settled by a more direct test. We propose to bring it to this test by a few questions.

Are the text-books now used in our colleges better or worse than those formerly in use? Are our teachers more learned and skilful, or less so? Are the performances at our commencements and exhibitions marked by greater comprehensiveness, depth, and precision than formerly?

We have heard one answer, and only one, given to these questions, and that, in many cases, by men very far from any bias in favor of our system of college education generally.

We do not intend to deny, however, that the alumni of our colleges have not the same relative superiority to the rest of the community enjoyed by their predecessors sixty years since. It

is certainly true to a considerable extent, that the productive callings, so called, by which, we suppose, are meant those which produce most money and add most to the physical wealth of the community, are filled with men who have not received a college education; and that the position of these individuals, compared with that of professional men, is far in advance of what it was formerly. But one material cause of this difference is, not that college education is less perfect than it once was, but that education of all other kinds is better. In the last century, few who had not passed through college were well educated in any way. A common school education, and this was then almost the only education except a collegiate one, comprised little else than some instruction, and that none of the most complete, in reading, writing, and arithmetic. In a certain sense, every man in New England was taught to read and write; and this was certainly infinitely better than no education at all. But the reading of a common English author with a tolerable enunciation, and spelling with exactness, were rare accomplishments. High schools scarcely existed in name or in fact; and normal schools for the edu-

cation of teachers, except so far as the colleges might be considered such, are, at least with us, the growth of the present generation. All this is now changed, and we rejoice that it is so. Public office and private consideration are, professedly at least, bestowed on those who are most competent and deserving, without inquiring in what seminary, or under what training, their qualifications were acquired, and without making either a college education or the want of it a ground of exclusion. This is as it should be.

Whether our colleges have degenerated since the Revolution is, however, a question principally important for its bearing on another of a more practical and momentous kind, which we have already touched upon; namely, whether our New England system of college education is, on account of what it includes and what it fails to include, unfitted to supply the great intellectual wants of the community. It is said that education at our colleges is not practical, and that, for many of the most important avocations of human life, the student leaves college as unprepared as he enters it. College education, we are often told, does not make better farmers, mechanics, or merchants, and does little or noth-

ing to develop the physical resources of the country.

That such charges are true to the full extent, certainly cannot be maintained. The elements of many practical sciences are taught, and well taught too, at more than one of our New England colleges. Besides, the general education given in all those institutions, has or is supposed to have, a value in preparing the student for whatever avocation he may afterwards select. To develop even the physical resources of our country, we know of nothing better, as a first step, than to develop the minds which are to carry on the work. But if it be meant that our colleges do not prepare young men fully for agricultural, or mechanical, or mercantile pursuits, this, no doubt, is true. It may be added, that the knowledge required for the successful pursuit of most avocations of those descriptions cannot, to any thing like the full extent, be communicated in any collegiate seminary. Take, for instance, the business of agriculture. It is certainly possible to teach the elements of this great science in a single course of lectures. In the hands of a lecturer like Professor Low, of Edinburgh, this subject might be rendered highly

interesting to every college student; and that, too, at the cost of very little time, and a moderate degree of agreeable exertion. He might thus qualify himself, certainly not to be a skilful farmer, but to appreciate fully the importance of this great branch of human industry, and to pay to it not only a just, but an intelligent homage. He could at least lay a foundation for further advancement, should his thoughts be directed to agriculture at any subsequent period, either as a leading pursuit, or as a favorite recreation. We think, therefore, that the study of the *elements* of agriculture might be introduced into our colleges or our schools, with the highest benefit, not so much to those pupils who were already practically acquainted with farming, as to those who might otherwise grow up in profound ignorance of the subject. But we doubt exceedingly the possibility of carrying instruction in agriculture, in any of our colleges, much beyond its elements, (without converting those seminaries into mere farm schools); and we believe that whoever desires to be a thorough farmer must leave his place of instruction, be it what it may, at an early age, and enter at once on actual business. If it be necessary to carry

agricultural schooling to a further extent, if there is, in fact, a demand for a complete education in agriculture, which shall occupy the time of the student till he shall reach the age of eighteen or twenty, we are satisfied that this object can only be accomplished by separate institutions for an extensive course of instruction in this art, resembling the school at Hofwyl. It is for the State or for individuals, if they deem it expedient, to found such institutions.

These remarks may be extended to the pursuits of the merchant or mechanic. No man, practically acquainted with either of these pursuits, would say that specific instruction in them, beyond the teaching of a few simple elements, could be given at any college to the slightest advantage, or that such institutions could be any thing better than very imperfect substitutes for a good workshop or counting-room.

Another objection has, however, been urged against our colleges; namely, that they fail to fulfil the promises held forth to the pupils and their friends, or, in other words, that the education which they give is not thorough of its kind. This complaint is made with the greatest frequency and earnestness, in relation to the instruc-

tion given by those seminaries in classical learning. It is this objection which has led, in no small degree, to such animadversions on our whole system of colleges, as we find in Dr. Wayland's report, in the remarks quoted by him from a pamphlet by one of our most distinguished writers, and in the speeches and writings of many eminent scholars. It is often said that our youth employ by far the larger portion of their time in learning what is sure, in a few years more, to disappear from their minds, without leaving a token of its existence. Now we are far from denying, that classical education in this country is less complete than in England and Germany; but we think that this difference has been exaggerated, and that, such as it is, it is far from being entirely chargeable to our colleges. Much misapprehension exists in our country, as to the proficiency made by the great mass of English students at Oxford and Cambridge. It may be safely said that the pupil, at either of those universities, who aims only at an academic degree, adds little or nothing to the knowledge which he brings there, and that the university is to him merely an elegant literary retreat, in which he can pass on from early youth to man-

hood. The few who strive for honors are compelled to task themselves to the utmost, and are rewarded accordingly in after-life.

It is not to be denied that classical scholars in England generally are far superior to those of our own country, in their knowledge of the niceties of the Latin and Greek languages; and we are far from saying that this is an unimportant particular. But their superiority is owing, not to the colleges in England, but to the *schools*. There, the classics are taught with untiring assiduity, and, we may add, with unsparing rigor, by men whose whole lives have been devoted to this sole occupation. A blunder in quantity is an offence for which there is no palliation and no mercy; and hence, he who enters Oxford or Cambridge, whether the range of his classical studies has been more or less extensive, has learned, with the last degree of exactness, every book which he has studied at all. It is, under the circumstances of the case, no very discreditable charge against the great majority of classical instructors in this country, to say, that such an exact and finished education is beyond their power to furnish; and it is a highly gratifying fact that some of our schools (the Latin school

in Boston is a striking, though not a solitary instance) are decided exceptions to this general position. But our colleges must be supplied with pupils, if at all, from our schools as they are, or as they may gradually become. The requisitions for admission, at Harvard or Yale, might be so raised, that none, but a few pupils from our large cities, could pass an examination; and the necessary consequence would be, to reduce the list of annual graduates to the primitive number of ten or a dozen. But if such a step, as is self-evident, is out of the question, the only course left for our colleges is, to make the best of the pupil as he comes to their hands, and to maintain their relative standing in advance of our preparatory seminaries. We have seen no evidence that this is not done.

But if our classical education is less perfect and exact than that of England or of Germany, it is going quite too far to say, (as often is said,) that it is useless or worse than useless. Our youth are not taught to speak in Latin or Greek; and if they were, their power of doing so would rapidly die out on their leaving the college walls. They are not taught so well as might be desired, to write in those languages. But, to say noth-

ing of the mental discipline derived from classical studies, (a most important point, to which we shall presently recur,) our students, after all, acquire the learned languages as thoroughly as many of the distinguished writers of England acquire those of modern Europe; that is to say, they can read correctly so much of those languages as may be actually thrown in their way in after-life; and this, if not a creditable, is, at any rate, a comfortable acquisition. The same remark may be extended to many of the other branches of knowledge which form a part of our collegiate course of study. The student is taught enough of several important branches to enable him to render himself a thorough proficient, in after-life, in the one, or the few, to which he may devote himself. This, if you please, is superficial education; but we believe it is better, in our country, at least, than a truly German scholarship in Latin and Greek, and an utter ignorance on other subjects.

We shall doubtless be met by the hackneyed maxim of Pope,

"A little learning is a dangerous thing;"

but this, like many other of his maxims, owes its

currency much more to its point and its melody, than to its real weight, and is obnoxious to the criticism pronounced by a poet, by no means his inferior,* on his celebrated description of the ruling passion: —

> "What pity, in rearing so beauteous a system,
> One trifling particular, *truth*, should have missed him."

We might say with as much logic, though not as much poetry, that a little light was a dangerous thing, and that William the Conqueror's Curfew law was a wise and beneficent regulation. A little knowledge, even if alloyed with pedantry, is after all better than ignorance. Besides, every well-informed man, and no man who is acquainted with only one topic has any claim to the appellation, must of necessity be superficially informed on a variety of subjects. He may know enough, however, to appreciate, if not to emulate, the superior proficiency of others; and enough for the gratification of his taste, and for enlarging and invigorating his faculties.

But it is time to advert more particularly to the change in our college system of education

* Burns's sketch of an epistle to C. J. Fox.

proposed in Dr. Wayland's Report. The cardinal principle of this change seems to be set forth, in the fifty-first page of that document, in the following terms: —

"That the various courses should be so arranged that, in so far as it is practicable, every student might study what he chose, all that he chose, and nothing but what he chose."

The question raised is, not whether the classics and mathematics should hold their present position in our systems of general education, but whether any such general education shall exist; or, shall each college, instead of giving an uniform education to all its pupils, be changed into a collection of schools for the teaching, specifically, of the several professions (using the term in its largest sense) which are followed in our community.

This is certainly a bold innovation. We have great doubt whether it be practicable, or, if practicable, whether it will be a useful measure; and none at all, that it will, if thoroughly put in practice, be a most costly one. We look, however, on the experiment with no sinister views, and see much cause of congratulation that it is to be attempted under such respectable auspices.

But we trust that other colleges will be contented to wait the result, and abstain for the present from radical changes, which, if once made, cannot well be recalled, and which, we think, for the following, if for no other reasons, of exceedingly doubtful expediency.

In the first place, it seems to be assumed, that a student at his entrance into one of our colleges, that is to say, at the age of fifteen or sixteen years, is the best judge of what studies he should pursue. We say the student himself; for though the choice may be left in terms to the parents or guardians, yet these, in nine cases out of ten, even if competent judges of the matter, will be guided by the representations of the pupil. The consequence in many cases will be, that every branch of study will be avoided which is difficult at the outset. Nothing is easier than for a young lad to persuade himself, that he is naturally unable to comprehend this or that abstruse branch of study. But how many proficients would there be in any science, art, or business whatever, which should be pursued only by those who find their path easy and agreeable at the very beginning? On the contrary, is not history filled with the names of individuals, whose

highest distinction has been gained in those very pursuits which they found at the outset most distasteful and discouraging. That a study is repulsive to a young pupil may, in some very rare instances, be evidence of an absolute incapacity on his part to pursue it; but it is much oftener a proof that it will afford the very discipline to his mind which is most needed.

But the pupil of sixteen, if of sufficient judgment and industry to select, not the easiest, but the most profitable intellectual pursuits, cannot well decide on his course of education, unless prepared also to determine another most important question, — namely, what shall be his avocation in after-life. This is a responsibility which, as it is, is cast upon our youth full early. The choice of a profession is, in our country, left in most cases to the student himself, instead of being made for him by his parent, as in many other countries; and there is rarely a large family of which all the members select the same avocation. This choice is generally made by all who receive a college education, at the close of their college life, after the student has had some fair opportunity to ascertain the bent of his

genius. And yet a change of avocation subsequently is far from an uncommon occurrence.

Another consequence would probably flow from the plan of allowing the student, at his very entrance on college life, to select his favorite course of study, and abandon entirely the pursuit of every other branch of knowledge,—namely, that education in all cases would be of a very limited kind, and that a man of general information in any reasonable sense of the word would be a rare phenomenon. Every scholar, at the close of his education, might possess an extensive acquaintance with one subject, or with one small class of kindred subjects, and be profoundly ignorant on all other topics. We had supposed that this was considered as one of the most objectionable features of the English system of education. It is that which has called forth the loudest complaints of the opponents of that system, and, we think, with much justice. The classical scholar in England is, it is said, a mere scholar with no knowledge on any topics of interest which date since the Christian era, and with no sympathy in the pursuits, physical or intellectual, of the great mass of his country-

men, who, on their part, are scarcely better acquainted with the history or the literature of Greece or Rome. It is also a common remark, that the English merchant, generally speaking, is a mere merchant, and that by the English farmer, (we mean practical farmer,) his own interests and pursuits are deemed the only objects worthy of the public care and notice. Such results would surely be any thing but desirable in a country like ours, where the usefulness as well as the reputation of every individual may often depend in no small measure on the degree of general knowledge which he may possess in relation to the pursuits and the condition of those who are engaged in other avocations than his own. Much light may be thrown on the questions which have formed the theme of our remarks, by a recapitulation of the professed objects of a college education in this country, from the middle of the last century to the present time. It has not been, as seems to be sometimes taken for granted, the aim of those institutions to qualify young men for the practice of the three learned professions, or either of them. The more ancient of our colleges were intended at first as exclusively nurseries of the church; but

this, to the regret of some and the satisfaction of many more, they have long since ceased to be, and the pupil now receives his special preparation for the sacred desk at theological seminaries, and, in most cases, after passing through a college life. Our colleges have never been supposed to be, properly speaking, law or medical schools. Institutions of both these descriptions have indeed been connected with some of our largest colleges; but the instruction and discipline administered to the pupils of these different schools, as well as the pupils themselves, are entirely distinct. The real object of our colleges is to give to every pupil, who has the time or money to spare for that object, a good general education, not merely because such education is almost indispensable to those who may afterwards prepare themselves for the learned professions, or for purely scientific or literary pursuits, but because it is highly useful to every one, be his subsequent calling what it may; and because no way has yet been devised by which, in the opinion of the public generally, four years of the period usually allotted to education can be better occupied.

In giving this education, we propose, in the

first place, to invigorate and discipline the mind, to prepare it to grapple with whatever subject may come in its way, and search out truth, in whatever path of human industry the scholar's subsequent course may lie. It is with this view, though not with this view only, that, in all our colleges, the principal place in their course of study is given to classical and mathematical studies. The knowledge which the pupil of Harvard or Yale actually acquires from the pages of Demosthenes and Tacitus, or of Newton or Laplace, may be far from considerable, and must, in most cases, be fleeting. In a few years, unless subsequently recalled by a reperusal, it must fade away, in common with all the stores of his early reading, from the tablets of his memory. But the expansion and vigor which must have been given to his mind, by this high converse with some of the mightiest intellects which have ever existed, will endure, it may be, as long as the mind itself. Till it can be shown that other studies are better calculated to effect this great object than the classics and the mathematical sciences, or that a vigorous and well-disciplined mind is of no value to any one but a clergyman, lawyer, or physician, we trust

that the foundations of our systems of college education will not be changed except upon some better evidence than, we will not say unfounded, but as yet untried, theory.

Secondly, we conceive one leading object of our systems of college education to be, not only to invigorate and expand the mind of the student, but to teach him to communicate his own conceptions most acceptably to others; in other words, to render him, so far as may be, a master of his own language. This we conceive to be the principal object of the study of all classical writers, whether in the language of Greece or Rome, in those of the European Continent, or in English. The student's vernacular tongue is, we need not say, the great instrument by which he is to act upon other men in a public or private capacity; to enable him to use this with effect, or, in simple terms, to write and speak well in English, is an object which holds a high, though by no means too high, a place in our systems of college education. It is thought by many, that a vigorous mind will always find a way of clothing its thoughts in apt language. We do not deny that many instances might be brought in favor of this position; but as a mass,

we submit that the best writers of our country have been among its best educated men, and we have a striking proof, in one of the most illustrious authors of our own or any country, how far the conceptions of a noble intellect may be disfigured by mere negligence of style. We refer to Jonathan Edwards, a man in whom were combined an acuteness of logic and brilliancy of fancy, which, had his phraseology been worthy of his ideas, would have placed him, as an English classic, in a position scarcely inferior to that of any prose writer in our language; but whose grand conceptions, when contrasted with his slovenly and barbarous phraseology, remind us of nothing so much as the wise and mighty Ulysses disguised in the garb of a mendicant.

Thirdly, although, as we have seen, the classics and the mathematics, pure or mixed, hold the principal place in our college system of education, and occupy by far the larger part of the student's time, yet that system is not, as in the English universities, limited entirely to the teaching of one or of both of these great branches of knowledge. From the very beginning, other studies in .theology and ethics and metaphysics have formed a part of the college course; and

within the last twenty-five years, that course has been so far extended as to comprehend many other studies which have been recommended to the government of our colleges by their popular character, or introduced in compliance with the statutes of professorships founded by the gifts or bequests of liberal individuals. We are free to say that, in Harvard College at least, this multiplication of studies has been carried quite too far. It will soon, we think, be a serious question with the government of that institution, whether the list of required or permitted studies shall not be abridged by striking from it such as are of less comparative value, or can be full as well, or better, acquired elsewhere. But we have no desire to return to the English system of education, and confine the pupil to the narrow course of studies pursued in the universities of that country. Some knowledge of the constitution of his State, and his country, of the philosophy of the mind, and of the elements of the leading sciences, should be possessed by every well-informed man; and all these can be pursued, at least to the extent to which most of these were taught twenty years since, in our best colleges, without interfering in the slightest degree with the groundwork of the student's education.

Lastly, in all our New England colleges at least, the discipline has been from the beginning, and still is, in a great degree, parental. Our youth enter those colleges, not at the age at which they enter our schools of Law, Theology, and Medicine, or at which young men enter the universities of England or Germany; but at a much earlier period. They are, in most cases, quite too young to choose their studies wisely, or to be left entirely to their own government, without any vigilant inspection, or constant and active control, on the part of the college faculty. Few New England parents would patronize any college, which was understood to be a seminary, where the pupil was merely *invited* to pursue a regular and industrious life. The relations between the faculty and the students, and those of the members of each of those bodies among themselves, are, to a great extent, similar to those existing among the members of a large family. Could the discipline of an immense university, a mere aggregate of distinct schools, be administered with the same mixture of kindness and rigor, or generally speaking, with the same constancy and effect? We do not say that it could

not; but those who would prove the affirmative by example must look elsewhere than to any university which has yet been established upon such principles.

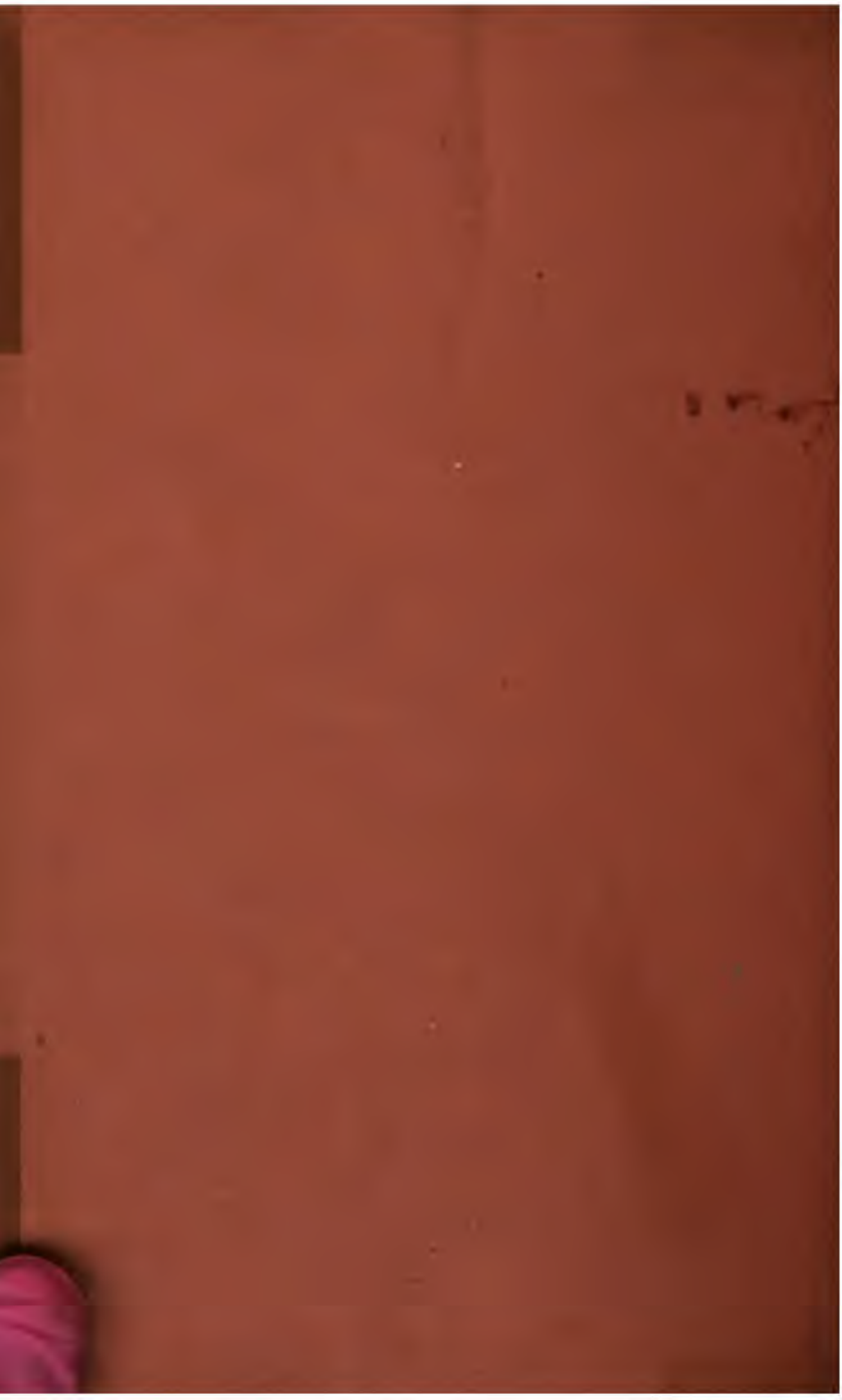
We have thus stated our views, not so much in regard to the propositions submitted to the public by Dr. Wayland, as upon the great question, whether or not our youth should receive at our colleges a good general education preparatory to the selection and the pursuit of the profession of their choice. It is much easier, on such a topic, to exhaust the patience of our readers than the question itself. We have endeavored to state the nature and the objects of college education, as conducted in the best colleges of New England. We think our general system, however administered in this or that college, intrinsically good in the main. It was transplanted originally from England, but has since been wisely changed, from time to time, in conformity with the varying circumstances of our growing community. We certainly see no cause for any radical alteration, and no evidence that such alteration is demanded by the deliberate good-sense of the community generally. New col-

leges are growing up everywhere, modelled essentially on the same principles;* and we find no evidence in the number of students of these colleges, taking those of our whole country into the account, that a college education is no longer highly prized. Above all, we find nothing in the character (generally speaking) of the alumni of these institutions, in the positions which they hold in society in after-life, or in the manner in which they discharge the duties of those positions, which warrants the belief, that a college education is of any less intrinsic value at this time than it was, and is admitted to have been, before our Revolution; especially when it must be allowed by every candid and thorough examiner, that far less was taught then than now. We submit, therefore, that we have other and better reasons than a blind attachment to things

* We find by the American Almanac, that in 1840, the number of colleges in our country was 93. In 1845, it was 108. At the present time, according to Dr. Wayland, they amount to 120; or, if we include Theological Seminaries and Law Schools, 209. The number of students in all the colleges of the United States is, according to the Almanac of 1850, 10,770. In 1840, it was 9,223.

as they are, for remonstrating against any sudden and radical change in our present collegiate system, and for maintaining, till the contrary shall be proved by actual experiment, the great utility of an extensive and thorough general education.

END.



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